Public Utilities

FORTNIGHTLY

Volume 65 No. 11 May 26, 1960

ARE EARNINGS DECREASING IN THE ELECTRIC POWER INDUSTRY?
By Franklin H. Cook

« »

Work Measurement Units for Utility Employees
By M. H. Diels

« »

What's Wrong with Commission Regulation? Part II.
By Harry M. Trebing

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The Natural Gas Industry—Past and Present

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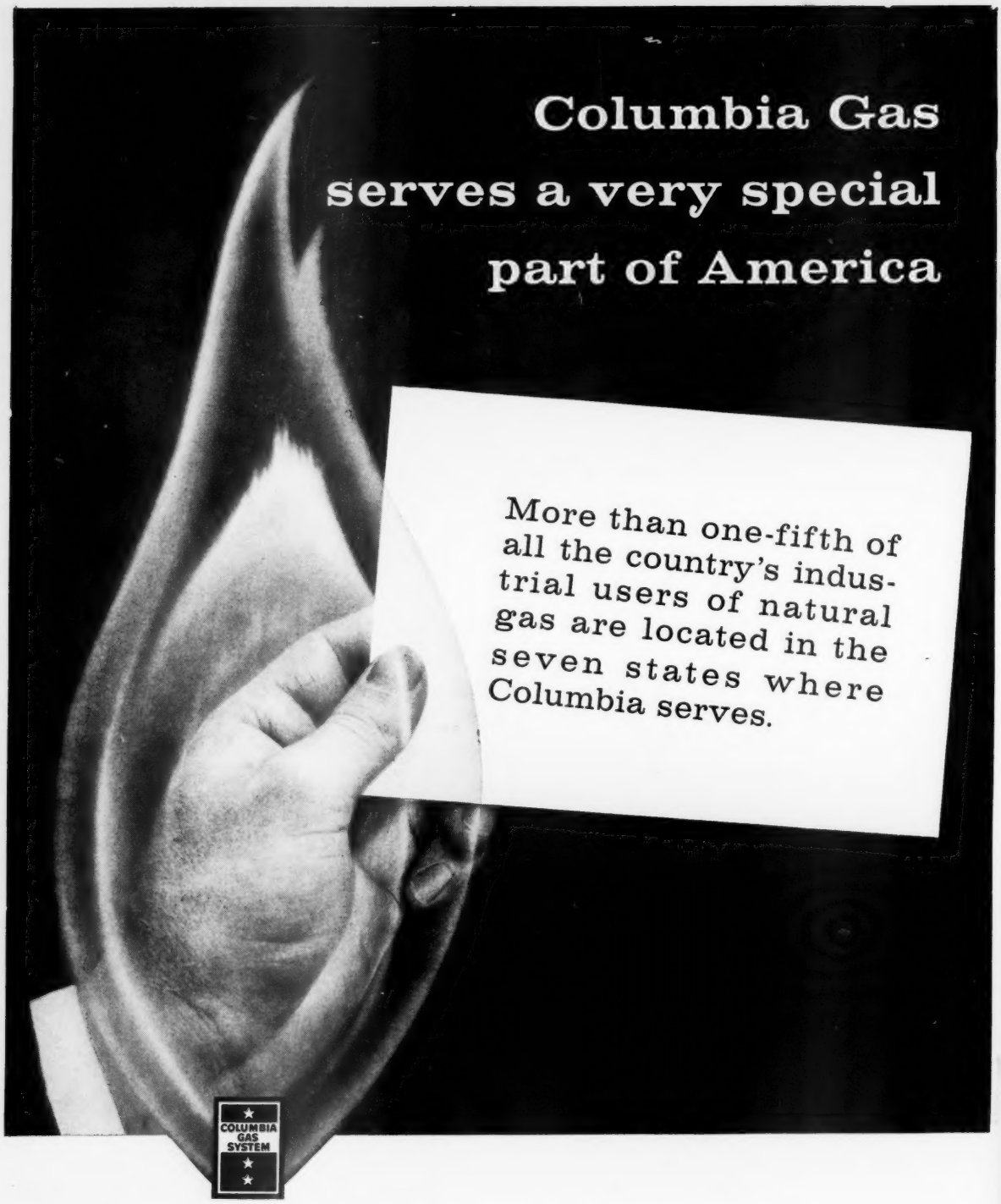
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Public Utilities FORTNIGHTLY

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ARTICLES

Are Earnings Decreasing in the Electric Power Industry? ..... *Franklin H. Cook* 721
The author concludes that through increasing use of internal funds the asset value behind outstanding bonds and capital stock will continue to grow.

Work Measurement Units for Utility Employees ..... *M. H. Diels* 731
Some worth-while advice on how to apply work measurement units to the performance of utility employees.

What's Wrong with Commission Regulation? Part II. ..... *Harry M. Trebing* 738
The author feels that the accomplishments of commission regulation far outweigh defects to date.

FEATURE SECTIONS

Washington and the Utilities 751
Telephone and Telegraph 755
Financial News and Comment ..... *Owen Ely* 758
What Others Think 767
The Natural Gas Industry—Past and Present 767
Future of REA Electric Co-ops 770
Power Dams and Fishing Conditions 773
The March of Events 773
Progress of Regulation 777
Industrial Progress 19

• *Pages with the Editors* . 6
• *Coming in the Next Issue* 10
• *Remarkable Remarks* .. 12
• *Utilities Almanack* 13
• *Frontispiece* 14
• *Index to Advertisers* .. 30

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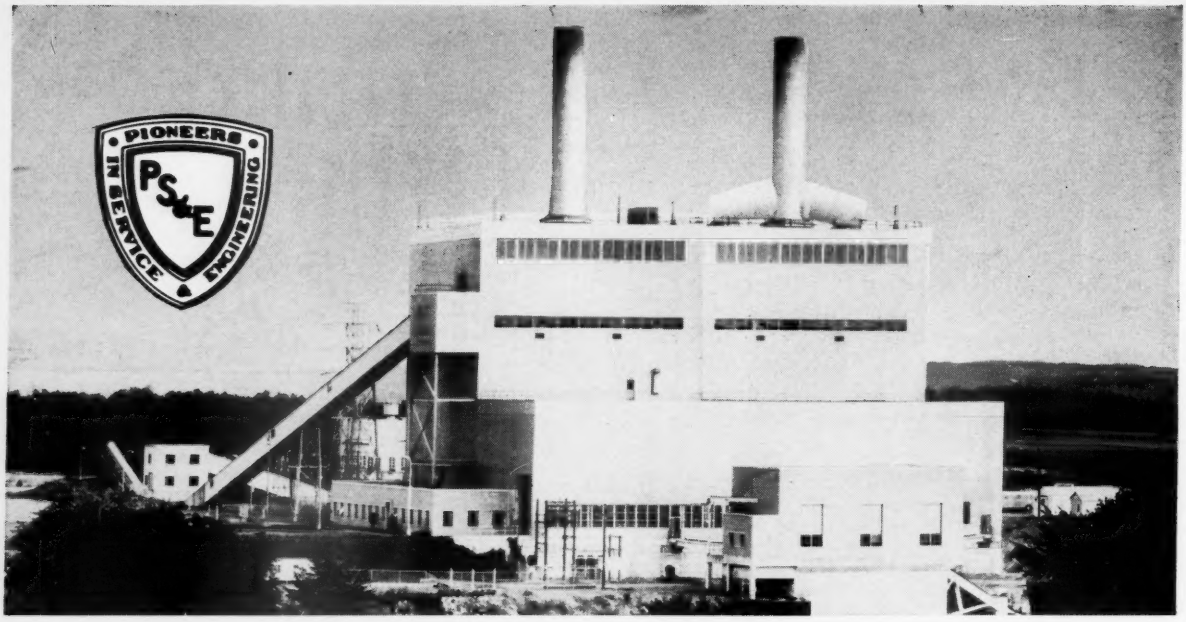

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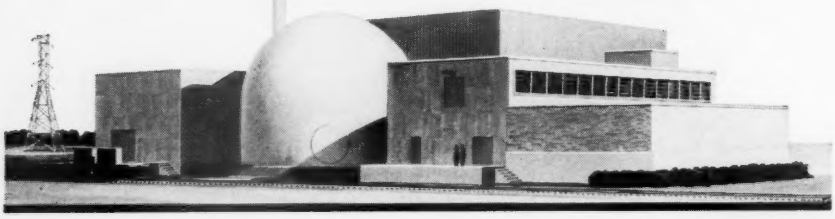

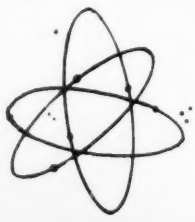

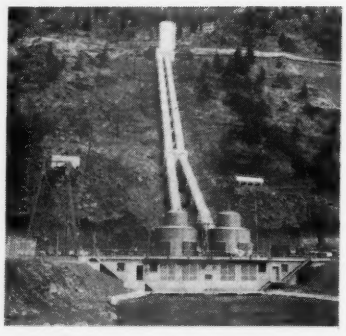

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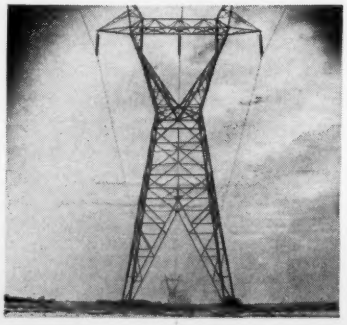

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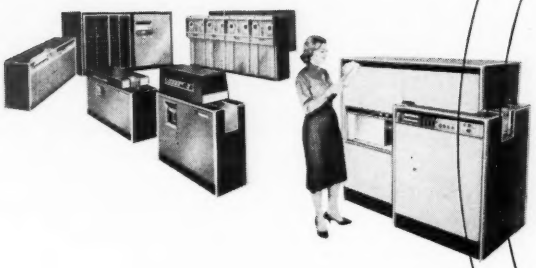

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Pages with the Editors

IN the recent controversy in Washington over the appointment of members to the Federal Power Commission, there came to the surface a rather strange concept of the function of a federal regulatory commission. There were two vacancies to be filled, in view of the White House decision not to reappoint Commissioner William R. Connole for a full five-year term. There was also the unexpired term resulting from the sudden passing of the late John B. Hussey.

IT was interesting to note press comments rather casually referring to Commissioner Hussey as a "gas man," to use the expression of presidential secretary, James C. Hagerty. Commissioner Connole, on the other hand, was frankly supported for reappointment by Senator Dodd (Democrat, Connecticut), a committee of lawyers, and a number of mayors on grounds that he had represented the consumer interests. Actually, Commissioner Connole denied any leanings toward public or private interests in any decision in his five years on the commission. And it is to his credit and in the best tradition of regulatory ethics that he did so.

BUT it is unusual to see Congressmen, mayors, and other well-informed personalities openly espousing the theory that a member of a regulatory commission should be the advocate of any special group or interest. Such was certainly not the original theory of commission regulation. And one wonders where commission regulation would end up if the appointing power (in this case President Eisenhower) were to fall in with the suggestion that appointments might be balanced on the basis of leanings toward special interests, or that a "gas commissioner" might be offset against a "consumer commissioner."

IF regulation ever moves off on such a tangent, it will indeed be in uncharted and troubled waters. The FPC, for example, has the responsibility for administering a number of statutory powers, entirely unrelated to the gas industry. There are hydroelectric licensing and the regulation of interstate electric utility operations. Would this mean that there would have to be an "electric commissioner"?

FRANKLIN H. COOK

THEN, too, as we all know, there has been a considerable amount of differences within the gas industry as between producers and distributing interests, so how could one "gas commissioner" reflect all points of view? Clearly, the practical, as well as the equitable, position to take on this matter—personalities to one side—was the attitude which Mr. Hagerty reported to be that of President Eisenhower. Hagerty told newsmen on May 2nd that the President does not believe "people on these boards" should be representatives of particular interests "unless it is written into the law." He added that the President thinks the commissioners ought to be "representatives of the U. S."

IT was in this light that announcement was made of the appointment of two new members of the commission, Thomas J. Donegan of New York for the full term, succeeding Commissioner Connole, and Paul A. Sweeney, to fill out the term of Commissioner Hussey. Neither of these

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appointments—still subject to Senate confirmation—reflect any background which could be connected with special interests, industrial or otherwise.

MR. DONEGAN is an ex-FBI attorney, whose activities with the government have been mainly in the field of subversive activity control. (He worked on the Alger Hiss case in 1946 as a special assistant to the Attorney General.) Mr. Sweeney, an even older career attorney with the government service since 1933, has been in the office of the legal counsel of the Justice Department and is a long-time resident of Chevy Chase, Maryland.

IF President Eisenhower had tried, he probably could not have picked two otherwise professionally qualified men more divorced from ties in the public utility field. Neither gas nor electricity nor professional consumer interest representation could be associated with the work of the FBI or career service in the Justice Department. It could be, in these days of so much argument about the effectiveness of the federal regulatory commissions, that the White House was actually influenced by this factor of disassociation in making its selection of new commissioners.

IN this issue we conclude the second instalment of a two-part article on "What's Wrong with Commission Regulation?" by HARRY M. TREBING, assistant professor of economics at the University of Nebraska. In his first instalment PROFESSOR TREBING reviewed recent criticisms of commission organization, operation, and procedures. In this sequel article he gives his own conclusions to the effect that commission regulation has been, on the whole, a success and that no suggested alternative could be expected to approach its performance.

M. H. DIELS

* * * *

THE article on work measurements for utility employees, which begins on page 731, comes to us from M. H. DIELS, comptroller of the Arizona Public Service Company. The author is a graduate of the University of Kansas (BS, '32) and has been an accountant for various utility companies in the old Cities Service system and allied organizations up to 1943. At that time he engaged in professional accounting practice in Tulsa, Oklahoma, and was lecturer on the subject at the University of Tulsa. In 1957 he became a supervisor auditor for the Federal Power Commission in charge of independent gas cases. Later that year he entered the service of the Arizona Public Service Company as a budget director.

* * * *

THE opening article in this issue on the subject of whether earnings are decreasing in the electric power industry comes to us from a very well-known scholar in the field of public utility economics, FRANKLIN H. COOK, professor in the department of commerce of the college of business administration at Pennsylvania State University. PROFESSOR COOK, whose statistical studies on electric utility performance have appeared previously in this publication, is a native of Pennsylvania and a graduate of Bucknell University (AB, '33). He is also a legal graduate from Duke University (LLB, '36). He received his master's degree in economics at Pennsylvania State University where he has taught since 1937. He was made a professor in 1954.

THE next number of this magazine will be out June 9th.

The Editors

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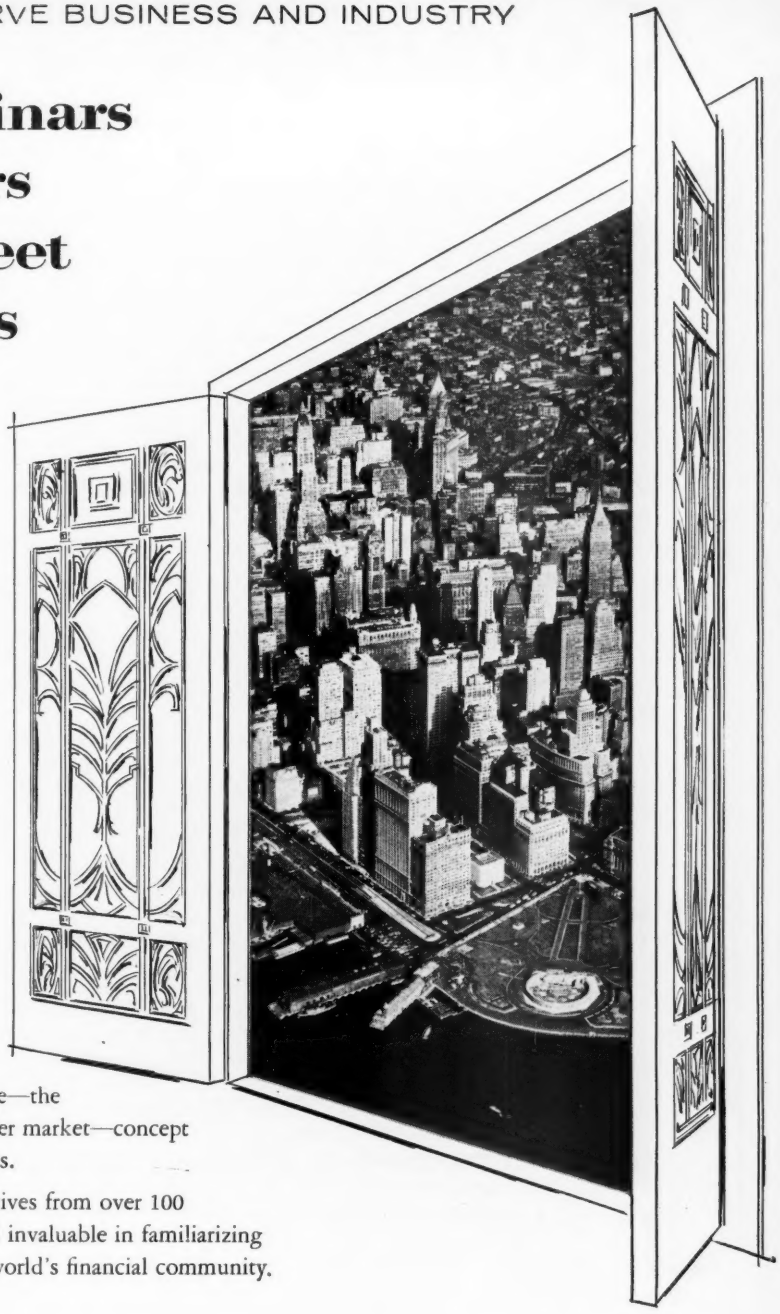

At One Wall Street, Irving specialists are ready with new and sound approaches—with seminars, for example, designed to provide the financial insight demanded by today's rapidly growing Utilities. In addition to meetings with Irving specialists, these seminars offer contact with experts from the many areas of the Wall Street community. It is these experts who actually make the Irving seminars possible.

Here's a brief list of some of the doors Irving opens for Public Utility executives during a Seminar Week:

Inside view of rating agencies—explanation of the functions of the investment banker—operations of the stock exchange—the broker and dealer and the over-the-counter market—concept of regulation—cost-of-capital—and others.

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(June 9, 1960, issue)

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MEETING TOMORROW'S POWER NEEDS

The theme of the Edison Electric Institute's convention, to be held in Atlantic City, New Jersey, June 6 to 8, 1960, is "Leading the World in Electric Power—the American Way." Allen S. King, president of the Edison Electric Institute, as well as president of the Northern States Power Company, has written an exclusive message on what this means to the electric utility industry for the annual all-electric issue of PUBLIC UTILITIES FORTNIGHTLY. Among other observations, Mr. King tells us that in 1959 the electric companies had nearly 112 million kilowatts in steam plants, and about 12.5 million in hydro plants. Nuclear plants, in which the AEC, electric utilities, and manufacturers have joined, actually provided 65,000 kilowatts of electric capability. Mr. King foresees an eventual investment by the electric companies of at least $650 million.

DO LOW ELECTRIC RATES INCREASE NET EARNINGS?

C. S. Reed, vice president of Duke Power Company, agrees with the TVA theory that cutting rates will increase sales and decrease operating expenses per kilowatt-hour. But what does such rate cutting do to net revenue and the per cent earned on the money invested? Mr. Reed thinks that if a commercial electric company were to follow TVA's theory of using unit cost as a gauge of successful rate making, it might have to give away free large blocks of kilowatt-hours to each customer. Aside from whether any TVA municipal customer is making a fair return, do such low rates increase net earnings? The author thinks that they do not.

TOWARD GREATER FREEDOM

On May 11, 1960, the Rural Electrification Administration celebrated its twenty-fifth anniversary of existence. Since it was created in 1935, REA has financed some 1,000 rural electric systems, mostly co-operatives. David A. Hamil, Administrator, has written an exclusive message for the FORTNIGHTLY, outlining circumstances surrounding typical REA co-op activities and financing during this silver jubilee year of REA. Administrator Hamil finds much work to be done in the field of public relations activities by the co-ops on their own behalf.

HOW SOON ELECTRIC HEATING?

As recently as eight or nine years ago there were a number of electric utility companies that did not want electric space-heating business—in fact, recommended against it. Today the electric utility industry is generally enthusiastic about the possibilities of the space-heating market. G. T. Kellogg, of the department of public relations of the Air-Conditioning and Refrigeration Institute, Washington, D. C., tells about this changing attitude and the factors behind it. There is still concern, of course, about some of the problems presented. But the electric industry generally welcomes any system that will do an efficient job of space heating to offset high summer air-conditioning peaks.

REGULATORY TREATMENT OF ACCELERATED DEPRECIATION

The manner of accounting for and reporting to stockholders and the public tax deferrals arising from the use of accelerated depreciation, is still very much of a current problem for the electric utility industry. The most immediate cause for concern is a recent statement of policy issued by the Securities and Exchange Commission regarding balance sheet treatment of credit equivalent to reduction in income taxes. Harry A. Poth, Jr., of the New York city law firm of Reid & Priest, has made a comprehensive survey of the factors involved in this situation and gives us a roundup of regulatory authority today. One conclusion Mr. Poth arrives at points to the strong possibility that many companies practicing deferred tax accounting and making corresponding credits to a surplus account will voluntarily switch to the "flow-through" method with respect to liberalized depreciation.

★

Also . . . ***Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.***

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EDITORIAL STATEMENT
The Saturday Evening Post.

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ELLIOT E. WENTWORTH
Vice president, Cincinnati Vulcan Company.

". . . the plea is that managements of both large and small companies ask themselves — wherein can they find a common ground of co-operation in serving each other, in this good purpose thinking—each really needing the other? Not only then are their immediate groups benefited, but their social responsibilities to the nation are carried forward, and thus a whole people is protected and improved simultaneously."

GEORGE P. HITCHINGS
Manager, economic analysis department, Ford Motor Company.

"Higher pay rates can provide more real buying power for the total economy only if they reflect an increase in output per man-hour. It is this that makes possible economic growth. Benefits of increased productivity must then flow to owners, employees, and customers in such a way as to stimulate markets and provide incentive for future productive efforts. Higher pay rates are not the casual factor, except where a redistribution of the income flow from one group to another stimulates total buying and output. Each proposal to expand the economy by taking from one group to give to another must be carefully examined as to the impact on buying of the group whose share is reduced."

UTILITIES
A·l·m·a·n·a·c·k

MAY-JUNE

Thursday—26 *The Natural Gas and Petroleum Association of Canada begins annual convention, Niagara Falls, Ontario, Canada.*	**Friday—27** *National Rivers and Harbors Congress ends four-day annual convention, Washington, D. C.*	**Saturday—28** *American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., will hold annual meeting, Vancouver, British Columbia, Canada. June 13-15.* ***Advance notice.***	**Sunday—29** *Interstate Oil Compact Commission will hold mid-year meeting, Detroit, Mich. June 13-15.* ***Advance notice.***
Monday—30 *American Institute of Electrical Engineers will hold summer general meeting, Atlantic City, N. J. June 19-24.* ***Advance notice.***	**Tuesday—31** *National Federation of Advertising Agencies ends six-day annual management conference, Three Lakes, Wis.*	**JUNE** **Wednesday—1** *Appalachian Underground Corrosion Short Course begins, Morgantown, W. Va.*	**Thursday—2** *American Water Works Association, New Jersey Section, begins meeting, Riverton, N. J.*
Friday—3 *Central Committee on Communication Facilities—National Petroleum Radio Frequency Co-ordinating Association end three-day joint meeting, Washington, D. C.*	**Saturday—4** *Oklahoma Associated Press Broadcasters Association begins meeting, Tulsa, Okla.*	**Sunday—5** *Mountain-Pacific States Conference of Public Service Commissions begins, Sun Valley, Idaho.*	**Monday—6** *Edison Electric Institute begins annual convention, Atlantic City, N. J.*
Tuesday—7 *Pennsylvania Telephone Association' ends two-day annual convention, Bedford Springs, Pa.*	**Wednesday—8** *California Telephone Association begins annual convention, San Francisco, Cal.*	**Thursday—9** *World Power Conference ends five-day meeting, Madrid, Spain.*	**Friday—10** *New England Conference of Public Utilities Commissioners will be held, Vergennes, Vt. June 21-23.* ***Advance notice.***

Courtesy, Philadelphia Electric Company

Tower Wagon—Circa 1911

One of a fleet of eight electric tower wagons used by Philadelphia Electric Company to service electric arc street lights. Powered by electric motor, it could attain a maximum speed of 20 miles an hour, had a range of 15 to 25 miles. Replaced in mid-1920's.

Public Utilities
FORTNIGHTLY

VOLUME 65 MAY 26, 1960 NUMBER 11

Are Earnings Decreasing in the Electric Power Industry?

By FRANKLIN H. COOK*

Since 1939 the earnings on total electric utility plant have been declining. But the rate of return on the capital structures of the industry has remained fairly constant. This favorable situation should continue as the demand for electric power keeps spurring unusual growth. Moreover, by increasing use of internal funds, the financial strength of electric utilities should be greatly strengthened. The owners of most shares of stocks in electric utilities should do well in the future.

THERE exists disagreement among economists in the public utility field as to whether earnings or dividend pay-out are more important in determining the market price of a share of stock.[1] Undoubtedly, when all factors are equal and earnings are adequate, yield to the investor is a significant element. But if a company's earnings did not support its dividends paid out, the market price of the security would reflect such fact; further, since an investor buys for future earnings, if the industry or the particular company seemed unable to sustain or to increase its earnings in the future the price of the stock would likewise be affected.

For example, in the period since the termination of World War II, the United States has enjoyed almost uninterrupted

*Professor of business law, College of Business Administration, The Pennsylvania State University. For additional personal note, see "Pages with the Editors."

prosperity and economic expansion, except for the recessions in 1949, 1954, and 1957, which were scarcely perceptible in the electric power industry. During this period for utility companies possessing steady earnings required to go to the market for new capital, yield would appear to be more important; on the other hand, for present investors in the nation's railroads the ability to maintain present earnings or to increase those earnings in the future would be of dominant weight.

TODAY, because the electric power industry is neither a new industry nor a decadent one, its securities do not fall into the speculative category. The price of its bonds and common stock and their popularity with investment funds and institutional investors are evidence that the electric power industry is mature, continuing to make technological advancement to meet an increasing demand.

Primarily, the investor in electric power common stock is interested in security of principal and certainty of income rather than growth. As the industry seeks additional capital to meet demand, he is concerned not only whether past earnings can be maintained, but whether earnings satisfactory to the investor will continue under a quantitatively larger capital structure. An examination of the past earnings trend of the electric power industry, subdivided on the basis of type and size,[2] may give some insight into this concern.

THE earnings picture for the electric power industry is not totally dark, nor is it definitely favorable. Earnings on total utility plant and as a percentage of operating revenue have been decreasing between 1939 and 1957, which alone could be a retrogressive factor.

However, earnings on the par value of the capital structure do not show the same general downward trend and when measured in number of times bond interest is earned are actually increasing in sums available for pay-out to the security holders.

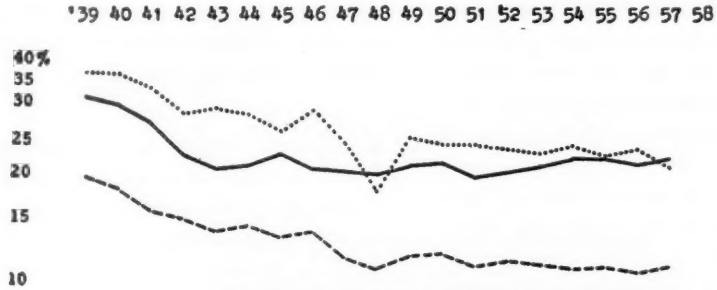
Although actual earnings and yield on securities outstanding are of chief consequence to the utility investor, the decline of earnings on plant value and as a percentage of operating revenue has not hindered the electric power industry in its ability to attract capital.

Earnings on Plant Value

EARNINGS on total utility plant value, similar to a rate base, are a function of the amount invested in plant and the earnings of the company. If the plant investment decreases and earnings remain constant the return should be higher. On the other hand, a drastic drop in earnings with a constant plant value would result in a decrease in return on plant value.

Plant value as herein defined is total utility plant before deducting reserves for depreciation; the latter approximates 17 per cent of plant value for steam companies in 1957, 22½ per cent for purchasing, and 18½ per cent for hydro, implying that the purchasing utilities possess the oldest equipment. Earnings represent total operating revenue deductions subtracted from operating revenue. From earnings interest is paid to the long-term debt holders, dividends to the stockholders, and sums relegated to earned surplus.

ARE EARNINGS DECREASING IN THE ELECTRIC POWER INDUSTRY?



EARNINGS IN TERMS OF OPERATING REVENUE

Purchasing - - - - Steam —— Hydro .....

CHART A

EARNINGS IN TERMS OF OPERATING REVENUE - PURCHASING

Small —— Large - - - -

CHART 1

EARNINGS IN TERMS OF OPERATING REVENUE - STEAM

Small —— Large - - - -

CHART 2

EARNINGS IN TERMS OF OPERATING REVENUE - HYDRO

Small —— Large - - - -

CHART 3

BETWEEN 1940 and 1957 plant investment in relation to operating revenue for all types and sizes of these companies has decreased.[3] Such decreases when measured against operating revenue would be expected to yield a higher return if operating revenue and quantity of kilowatt-hours sold remained the same. Earnings are a resultant of the percentage of profit per dollar of revenue, or net operating revenue to operating revenue in Federal Power Commission terminology, and the quantity of kilowatt-hours sold. Charts A, 1, 2, and 3, page 723, demonstrate that the percentage of net operating revenue to operating revenue for all sizes and types of companies has decreased since 1939.[4] This decline would tend to lower the return on total utility plant, assuming that the plant investment remained constant. Nevertheless, a drop in net operating revenue per dollar of revenue can be offset by increasing the amount of revenue if plant investment remains the same. From 1939 to 1948 this phenomenon occurred in the electric power industry. However, Charts B, 4, 5, and 6, page 725, showing a decreasing return on total utility plant for all of the concerns between 1939 and 1957, belie the possibility of operating revenue increasing sufficiently to counterbalance the percentage of profit decline for every dollar of operating revenue.[5]

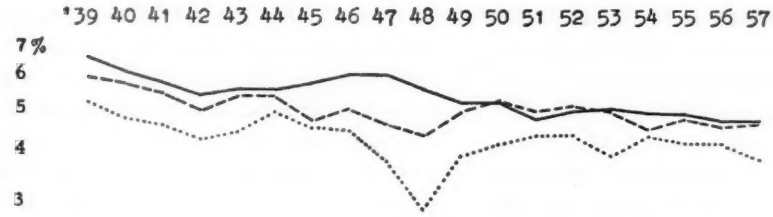
Thus, the electric power industry has shown a downward trend in plant investment for every dollar of operating revenue from 1939 to 1957, but has been unable to produce increased earnings on total utility plant value because of a substantial decline in the earnings per dollar of operating revenue, and a decreased number of kilowatt-hours sold for every dollar of plant investment.

IN summary, when earnings are observed on the basis of plant investment or as a percentage of operating revenue a disheartening downward trend from 1939 to 1957 is present; with a similar pattern revealed in the ratio of net operating revenue to operating revenue. These declines have persisted even though plant investment per dollar of operating revenue has likewise decreased.

Type and in some instances size of company have an effect upon earnings. Steam companies as a group have higher earnings on total utility plant than do purchasing or hydro enterprises. Small purchasing companies have higher earnings on plant value than do the large concerns, whereas, the small generating utility shows the poorest record of earnings of the three sizes of steam companies. Size has no significant bearing for the earnings on total utility plant of the hydro utilities.

Earnings on Security Values

WHEN earnings are presented as a percentage of total utility plant value the outlook for the electric power industry is not encouraging. However, in their annual reports the companies usually state earnings in terms of shares outstanding. Consequently, when observed as a percentage of outstanding capital stock and long-term debt, where capital stock consisted of the sum carried on the books for the value of common, preferred stock, and premiums, and long-term debt is the amount represented in the accounts for



EARNINGS ON TOTAL UTILITY PLANT

Purchasing - - - - Steam —— Hydro .....

CHART B

EARNINGS ON TOTAL UTILITY PLANT VALUE - PURCHASING

Small —— Large -----

CHART 4

EARNINGS ON TOTAL UTILITY PLANT VALUE - STEAM

Small —— Large -----

CHART 5

EARNINGS ON TOTAL UTILITY PLANT VALUE - HYDRO

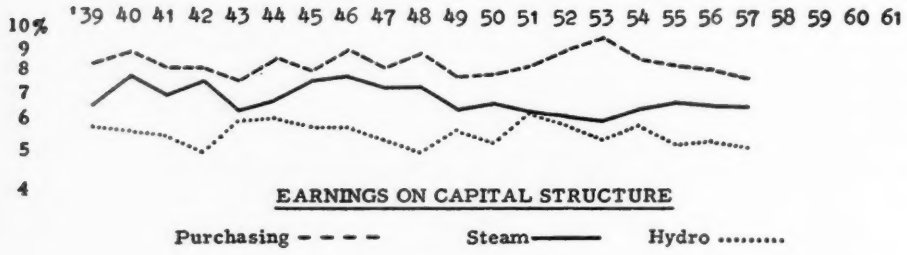
Small —— Large -----

CHART 6

bonds and other forms of long-term debt, the rate of return has remained almost constant from 1939 to 1957.

In fact, on Chart C, this page, the purchasing company was earning 8.6 per cent on its total capital stock and long-term debt outstanding in 1939 and 8 per cent in 1957; the steam, 6.9 per cent in 1939, and 6.8 per cent in 1957; but the hydro company because of its difficulties with its net operating revenue declined from 6 per cent in 1939 to 5.4 per cent in 1957.[6]

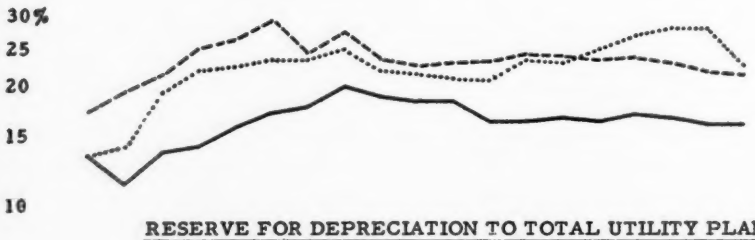
In comparing the relatively steady position of the ratio of net operating revenue to total capital stock and long-term debt outstanding, Chart C, with the downward trend of net operating revenue to total utility plant, Chart B, there is a strong implication that regulatory commissions have been giving more weight to a return sufficient to attract capital than a fair return upon the total utility plant value (similar to a rate base) or have been excluding assets acquired with internal funds from the rate base. As a result of internal funds from depreciation reserves, Chart D, this page, and earned surplus,[7] the electric power company has increased its total utility plant value faster than its total capital stock and long-term debt outstanding against that plant.



EARNINGS ON CAPITAL STRUCTURE

Purchasing - - - - Steam —— Hydro .....

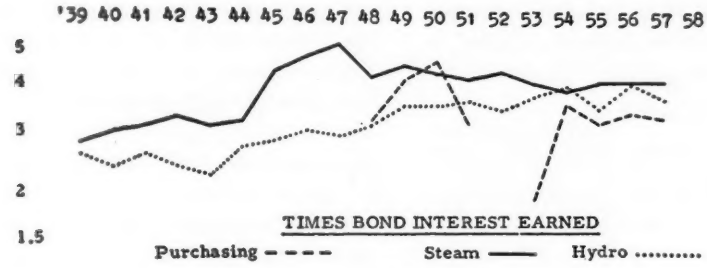
CHART C



RESERVE FOR DEPRECIATION TO TOTAL UTILITY PLANT

Purchasing - - - - Steam —— Hydro .....

CHART D



TIMES BOND INTEREST EARNED

Purchasing – – – – Steam —— Hydro .....

CHART E

TIMES BOND INTEREST EARNED - PURCHASING

Small —— Large – – – –

CHART 7

TIMES BOND INTEREST EARNED - STEAM

Small—— Large – – – –

CHART 8

TIMES BOND INTEREST EARNED - HYDRO

Small —— Large – – – –

CHART 9

Although utilities traditionally do not rely upon internal funds, Table I,

TABLE I

Internal Financing

	'47-'51	'52-'56	'56
Manufacturing and Mining	60%	72%	68%
Railroads	69	92	97
Transportation other than Rail	60	62	68
Public Utilities and Communications	26	32	36

Source: Dun's Review and Modern Industry, 71:2, p. 19, February, 1958.

there is a growing use of internal funds in the electric power industry. In 1939 the class A and class B electric power companies had $13.5 billion in securities against $14.1 billion in plant. In 1957 there were $29.5 billion in total capital stock and long-term debt against $40 billion in total utility plant value.[8]

SINCE 1939 there has been a steady growth of asset value behind the outstanding securities, rising from $1.50 in total utility plant value to every dollar of total capital stock and long-term debt outstanding—measured at par value—for the purchasing company to $1.80 in 1957; for the steam concern, from $1.10 to $1.40; and for the hydro enterprise, from $1.20 to $1.40.[9]

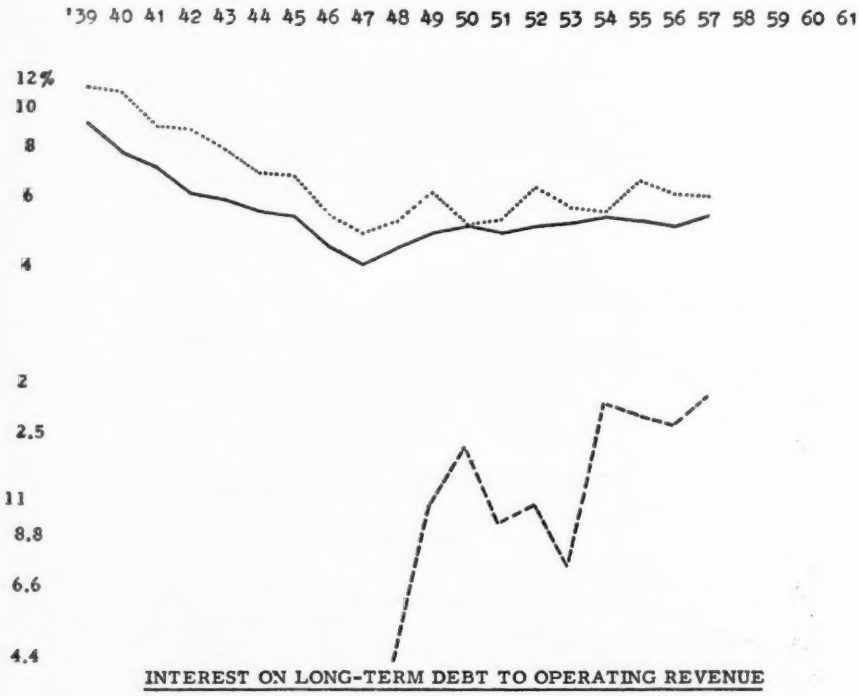


CHART F

Size of company appears to be immaterial as a factor in determining earnings on the capital structure except for the purchasing companies, wherein the small concern demonstrates higher earnings on external capital than does the large enterprise.[10]

Again, illustrating the effects of the large earned surplus accounts which are representative of the small purchasing utility.

Times Bond Interest Earned

THE earnings picture is definitely brighter when earnings are gauged in terms of bond interest earned. The greater number of times a company earns its bond interest and preferred dividends, the more favorable credit rating for the company, greater investment value of the concern's securities, greater percentages of operating revenue available for dividends to the stockholders, or consignment to surplus, and more favorable prospects of financing future expansion.[11] Formerly, earnings on bonds should have been two times interest charges; today, the rule is three times. In 1957 for the electric power field the ratio was 3.7 times after income taxes,[12] representing privately owned class A and class B electric utilities filing their reports with the Federal Power Commission.

When a refinement is made on the basis of type and size according to Charts E, 7, 8, and 9, page 727, neither the median steam nor the median hydro company in 1939 possessed a ratio of three times bond interest earned after income taxes. The steam company showed 2.8 times for 1939, rising to 4 times in 1957; whereas, the hydro concern had 2.6 times in 1939, moving to 3.6 times in 1957. An inspection of Charts 8 and 9 discloses that the steam utilities generally show greater times bond interest earned than do the hydraulic enterprises.

Undoubtedly, one factor that contributes to the comparatively low ratios of the hydro companies is the fact that the ratio of interest to operating revenue is larger for this type of company than for the steam utility, Chart F, page 728. Unsurprisingly, the bigger the utility the greater the number of times bond interest is earned: a function of the size of the net operating revenue, rather than the influence of the nature of the capital structure.

Summary

FOR the past the earnings record of the electric power industry has had both favorable and unfavorable aspects. True, since 1939 earnings on total utility plant value have declined, as well as earnings as a percentage of operating revenue; but the rate of return on the right-hand side of the balance sheet, stated value of capital stock and long-term debt, has remained fairly constant while the return on total utility plant was decreasing. The ratio of number of times bond interest has been earned has been increasing from the dual benefits of less bonds outstanding in proportion to operating revenue and a lower interest rate on long-term debt.[13]

Except for the security holders in the typical small steam company and perhaps the hydro concerns the owners of common stock should fare well in the future, for the past record of earnings and future demand for power indicate that the

rate of earnings on the capital structure will remain steady; and that through the increasing use of internal funds within the electric power industry the asset value behind the outstanding bonds and capital stock will continue to grow.

Footnotes

[1] "Some Aspects of the Rate of Return Problems," by E. W. Clemens, *Land Economics*, 30:32-43, February, 1954; "Cost of Capital in Public Utilities," by L. W. Thatcher, *Land Economics*, 30:85-111, May, 1954, stress the dividend-price relationship; whereas, "Dividend Payout and Utility Common Stock Value," by Fred P. Morrissey, PUBLIC UTILITIES FORTNIGHTLY, Vol. 55, No. 11, pp. 583-594, May 26, 1955, emphasizes earnings in contraposition to dividend pay-out.

[2] Median operating revenues for 1957; purchasing, $1.8 million; steam, $29.8 million; hydro, $4,820,000; small purchasing, $520,000; medium purchasing, $2,520,000; large purchasing, $10.8 million; small steam, $4,430,000; medium steam, $29.8 million; large steam, $77.1 million; small hydro, $896,000; medium hydro, $2,770,000; large hydro, $27.8 million. "Significant Ratios in Electric Power Industry," by Franklin H. Cook, Bulletin #59, Bureau of Business Research, College of Business Administration, The Pennsylvania State University, 1958, Table 2, pp. 34, 35.

[3] *Cf.* "Capital Needs of Electric Power," by Franklin H. Cook, PUBLIC UTILITIES FORTNIGHTLY, Vol. 62, No. 12, p. 921, December 4, 1958, Chart A. Purchasing company declined from $3.20 in plant investment for every dollar of operating revenue in 1939 to $2.50 in 1957; steam, from $4.60 to $4.50; and hydro, from $7.10 to $6.60.

[4] "Significant Ratios in the Electric Power Industry," by Franklin H. Cook, *loc. cit.*, Chart E, p. 16, Charts 12, 13, and 14, p. 44.

[5] *Ibid.* Chart D, p. 16; Charts 9, 10, and 11, p. 43.

[6] *Cf.* "Capital Needs of Electric Power," by Franklin H. Cook, *loc. cit.*, Chart E, p. 940.

[7] Earned Surplus to Total Assets, 1957; purchasing, 13 per cent; steam, 8 per cent; hydro, 8 per cent. *Cf.* "Cost of Capital and the Capital Structure of Electric Companies," by Franklin H. Cook, PUBLIC UTILITIES FORTNIGHTLY, Vol. 63, No. 12, pp. 820-838, June 4, 1959, Chart E, p. 833.

[8] Federal Power Commission, "Statistics of Electric Utilities in the United States," 1939 and 1957.

[9] *Cf.* "Capital Needs of Electric Power," by Franklin H. Cook, *loc. cit.*, Chart D, p. 939.

[10] *Ibid.* Charts 10, 11, and 12, p. 941.

[11] "Financial Statements," by Ralph D. Kennedy and Steward Y. McMullen. 1952, p. 521.

[12] Federal Power Commission, "Statistics of Electric Utilities in the United States," 1957, Washington, D. C.

[13] Federal Power Commission, "Statistics of Electric Utilities in the United States," 1949, p. xii; 1957, p. xviii.

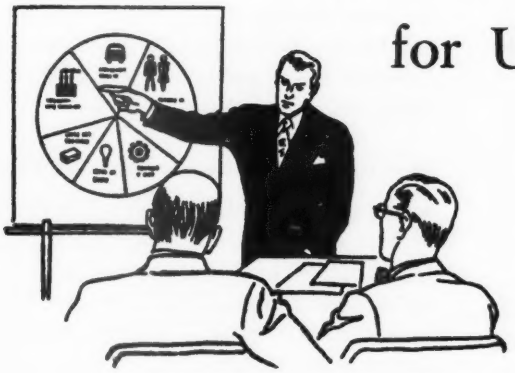
"THE greatest weakness of modern Capitalism is its lack of support among a large part of the intelligentsia. Their failure to support it renders the system vulnerable to replacement by a substitute system through parliamentary or revolutionary means, or to continuous expansion of the rôle of the state to the point where drastic change might be required in order to keep the economy functioning. . . .

"The intellectual has come more and more to think of the interests of the public and the Capitalist as fundamentally in conflict, the Capitalist being interested in the highest price that he can get for goods and services out of the consuming public. . . .

"Intellectuals generally do not accept the proposition that the alternative to capitalistic organization and direction of production through the market is administration of the economy by a hierarchical bureaucracy."

—CALVIN B. HOOVER,
Professor of economics,
Duke University.

Work Measurement Units for Utility Employees



By M. H. DIELS*

In their efforts to keep rates to a minimum in the face of rising costs, utilities should consider setting up standards of work performance for employees as well as machines. Measurement of output in terms of units can establish norms of efficiency against which the individual's performance can be judged and controlled. Such procedure will also reveal the best and most economical ways to do various jobs. Utilities must improve their record methods, however, in order to pinpoint specific productivity so that efficient workers can be identified and rewarded.

THE American public has given birth to a new economic "law." It says: "The cost of living may continue to spiral upward, but utility rates must remain fairly constant."

The utility industry is somewhat responsible for the conception of this "law." The utility companies have held rates in check mainly by reducing costs through development of more efficient generating equipment and by the promotion of increased sales per customer. The latter, of course, activates the real economic law of increasing returns, which allows a greater gross margin from increased sales per customer. They have accomplished this phenomena of low rates amid rising costs of living in spite of the ever-increasing unit costs which must be paid for materials and labor.

They can continue to hold rates close to their present level, yet make returns on investment more attractive, by reducing the unit costs of material and labor. They can accomplish this by measuring employee output.

For years, the utility industry has employed hundreds of work measurement units to evaluate the performance of power plant alone. It also uses such units to a lesser extent to determine the costs of transportation; *e.g.*, cost per mile, cost per customer, etc. And, there are many other areas where unit costs of equipment opera-

*Comptroller, Arizona Public Service Company, Phoenix, Arizona. For additional personal note, see "Pages with the Editors."

tion are tabulated and published for the benefit of department heads concerned.

Standards for Employee Performance

UTILITIES can go further and measure employee output too. By determining through work measurement what is the most efficient way to do a job, and with what materials, they can establish standards. These standards will help determine whether it is wiser and less expensive to use outside contractors or company personnel for certain work. They also will enable utilities to discover which of their crews, or who among their personnel, is the most efficient for any given type of job. Examples of work measurement applicable to construction, operations, and sales will be illustrated later in this article.

There is no doubt that work measurement has been extremely beneficial to manufacturing companies. For decades, these companies have utilized standard cost systems to measure workers' performance. They also have employed many other measurement systems to determine quality and quantity outputs. Settlements on billions of dollars worth of World War II "cost plus" contracts were based on these standard costs and other measurements. And, today, government contracts with the U. S. Air Force[1] are settled by units of measurements; *e.g.*, standard costs, cost units, production cost, and other guides.

Granted, most of the manufacturing work measurement is obtained via the stop watch technique, which is not applicable to public utilities. But, the utility industry does not need the stop watch technique. That is only one method; there are others.

Like the manufacturing industry, the utility industry is replete with measures and standards for motivating and evaluating human performance. They can be found in the repetitive nature of many utility industry tasks.

How to Initiate Work Measurement Plan

WHERE do we begin on such a work measurement program? First, we must establish an objective to set standards which indicate the most efficient workers or groups of workers. Put differently, the goal would be to determine sub par performances so corrective action may be taken to retrain the persons or group responsible for those performances, transfer them to types of work at which they would be more productive, or hire outside contractors to do their work.

The second step is to recruit a committee whose members enjoy tackling new ventures. Work categories susceptible to measurement in units can be defined. A review of the company's "forms" by department will reveal sources of quantities. Department heads can determine what cost data are needed to evaluate the performance of their workers. The company president lays the groundwork for acceptance of the program by outlining it to supervisors and other key personnel.

Quick acceptance of the program by company personnel can be expected once they learn the program will be the basis for training or retraining and provide information that will permit supervision to develop each employee to his maximum usefulness.

As human beings, supervisors and subordinate employees alike want to know if their performance is satisfactory. A copy

[1] Rev. No. 50 to Armed Services Procurement Regulation, November 2, 1959.

of the measurement data must first go to the lowest level supervisor in the area involved to give that individual the initial opportunity to improve the performance of his group or to seek advice from *his* supervisor.

Some Examples of Work Units

LET us not attempt to discuss all possible units of work measurements here. There follow some examples of such units in limited areas of operations, sales, and construction. Then there is developed the premise that a utility must have construction work measurement units to be able to determine whether its crews can do a job at less cost than an outside contractor.

Work in a transformer shop can be measured, for example, through use of the following record:

Monthly Activity	*Volume*	*Hours*
Transformers Repaired	285	808½
Transformers Issued New	286	41
Transformers Issued Old	192	40
Transformers Removed	314	60
Transformers Tested	526	103½
Transformers Received	250	118
Reclaimed Oil (Gals.)	825	87
Rubber Gloves Tested (Pr.)	709	273
Blankets Tested	690	
Hose Tested	479	
Photo Eyes Repaired	20	57
Cap. Received, Tested, Issued	58	6
Misc. Equipment Tested	19	4
Radio & TV Interference	—	32
Small OCB's Repaired	19	14
Transformers Painted	219	63
Building Maintenance	—	44
Trans. Rec. Cd. Prepared	300	84
Typing	—	84
ROS's Prepared	150	56
Phone Calls Answered	770	84
Filing	—	56
P.D.R.'s Prepared	—	56
Record Cards Posted	600	84
Mult. Loops Mfg.	215	78

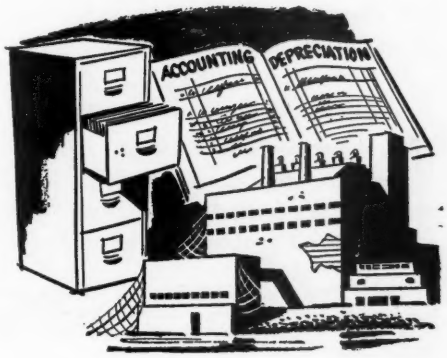
Figures on the monthly record would be compiled from daily sheets similarly set up for each employee. It is a simple matter for the employee to insert figures on a preprinted sheet to record the amount of work he has accomplished. The "order" used by many companies also is an excellent means for counting quantities of work completed.

Standards Can Improve Output

THE numerous repetitive tasks inherent in a transformer shop make that unit an excellent target for a "work smarter" program. The next step, after records of work accomplished are being maintained, is to apply time and motion studies, quality sampling, and quantitative analysis and similar cost accounting measures. A "standard," or par, can be determined from this date.

When any member of the employee group in the shop falls below par in his work, the work measurement records will show it. The supervisor then has an opportunity to bring this substandard performance to the attention of that employee in an attempt to improve it. This rarely is the case when there is no standard by which the employee can be measured.

Work measurement is applicable to utility sales operations too. It is helping some



companies to determine the effectiveness of their[2] sales promotion campaigns and the cost of those campaigns. A gas salesman could tabulate his daily accomplishment on this form:

No. Calls	*Daily Gas Sales Activity*	*Residential* Mcf	$	*Commercial & Industrial* Mcf	$
	Air Conditioning	—	—	—	—
	Boiler Load	—	—	—	—
	Cooking	100	60.00	—	—
	Conversions	—	—	—	—
	Heating (Process)	—	—	—	—
	Heating (Space)	1,500	350.00	—	—
	Irrigation	—	—	—	—
	Other Engine Load	—	—	—	—
	Lighting	—	—	—	—
	Campaign No. —				
	Campaign No. —				
	Totals	—	—	—	—

WHEN coupled with hours-of-work figures developed from statistical samples, the data above provide a basis for measuring a residential air-conditioning campaign, for example. If it is desired, the hours of work also can be tabulated by the salesman. The employee's attitude must be nurtured to obtain fair and accurate reporting. He will co-operate by reporting his data accurately when he understands that management wants him active in the sales area in which he is best suited. In that way, he will learn, the company will receive the largest gross margin, and he will earn a higher income. This probably is as close to a straight commission basis as we can get in the utility business.

Measurement of Construction

FOR the construction phase of our business, we often can obtain work measurement units from the Continuous Property Record. For those utilities where the construction work measurement units are not readily obtainable, and for those without continuous property records, we shall show that the cost of determining such units will be justified by the result obtained from work measurement. The desired result is to be able, not only to compare the utilities' construction costs with those of their own groups, such as foremen, divisions, and areas, but to compare them with the costs of outside contractors.

In developing the premise that construction work measurement units will help a utility cut costs of man power and labor, we first should study the business of a small home builder who earned success by watching his costs.

Cost Keeping Is Vital

THE builder has outstripped his competitors because, while still a small contractor, he kept a close record of his costs. He found equally good ways of doing expensive jobs for less money. Hardly any lumber was wasted; practically every scrap was utilized in some way. Many of the builder's cost figures were retained in his head or his shirt pocket. But, as his cost cutting permitted him to build and sell more homes under the prices of his competitors, his bookkeeping became more involved. As his business increased, it was necessary for him to make cash flow studies, interim statements to his bankers, and satisfy the requirements of the Federal Housing Administration and other political subdivisions of the government.

Our builder grew to be a big business, like a public utility. Now he can rely no longer on mental and shirt pocket notes. He cannot rely on his personal supervi-

[2] "Sales Promotion Yardsticks for Electric and Gas Utilities," by William T. Kelley, PUBLIC UTILITIES FORTNIGHTLY, Vol. 65, No. 6, March 17, 1960, p. 382.

sion of everything. Now he has experts to study costs, to prepare his tax returns, and to count the number of houses completed or partially completed. He cannot remain a successful builder if his experts do not continue to measure the output of his employees and keep a checkrein on his costs.

Neither can a utility remain successful—in the realms of attractive return or low rates—if it does not accomplish its job at the lowest possible cost.

Cost Record Methods Need Improvement

ONE current method of keeping records of costs in the utility industry is job order accounting. Each job is charged with the various total costs of the undertaking or authority, and the total then is compared with the original estimate.

One glaring disadvantage of this type of cost comparison is that it is impossible to determine the accuracy of your estimator or the efficiency of your job superintendent. Standards established through construction work measurement units would tell you. Job order cost accounting tends to keep all elements of a job in line *if* you assume that your estimates are expertly done, and any deviations from the estimates are called to the attention of the estimators and those doing the work.

Another disadvantage of this type of record keeping in the utility industry is that much work is done on "blanket" and small job orders. Costs of any given job for which these types of orders are written are lumped together, and the cost of the small job is never determined. No comparison is available, for instance, between two pole extensions in the city and two pole extensions in the suburbs. (The utility should not say that a lack of comparison makes little difference "because we had to make the extension anyway." The utility has a *trust;* for the benefit of both its stockholders and customers it must use the most efficient crew or outside contractor for the two pole extensions and any other job.)

EFFICIENCY cannot be measured on jobs completed under larger work orders or specific work orders not charged to blankets, either. For example, assume that estimates for construction of a substation

are overrun. One of three crews on the job cleared the site and poured the concrete pads; another set the equipment and bolted it down; and the third energized the station. Under present methods it usually is impossible to determine which crew overran the original estimate. We cannot reward the efficient crew because we cannot identify it.

Rewarding Efficient Workers

THE rewarding of the efficient and most productive crews or workers in any department is only one purpose of construction work measurement, however. More important, reports to managers in terms of construction work measurement units let them know if their departments are going forward, backward, or sideways.

A construction work measurement unit should be a measure or denominator of output, accomplishment, or efficiency. It may be expressed in dollars, but it more often is a quantity term within a given time, geographical area, crew of employees, division, area of responsibility, or other unit. Regardless of the kinds of units used, today they can be sorted, tabulated, and published by electronic data processing (EDP), the most recent boon to utility operations. An entirely new field is open to the cost accountant and engineer to prepare cost studies.

Work Measurement Should Be Simplified

WORK measurement reporting must not be so burdensome that it is done haphazardly or erroneously by foremen and supervisors. We can avoid some of the natural resistance to filling out forms by simplifying the procedure. We can code. EDP equipment can be most helpful here, since it normally functions rapidly on coded information. The job estimator can show the code numbers for units of property on the work order and the foreman can report his time via these codes.

As an example, let us take a job calling for the installation of seven 40-foot poles, nine four-pin crossarms, and six spans of #4 H.D. bare solid copper conductor. These we shall consider units of property, with the appurtenant hardware, insulators, etc., as subsidiary material. The job foreman would report the units and installation labor thusly:

Quantity	*Code*	*Crew Hours*
7	#99-40	28 M.H.
9	#11-019	7 M.H.
6	#11-637	8 M.H.

This coded report also serves as a field inventory signed by a foreman who saw the work accomplished. Modern computers can determine the cost of the job, compare it with standard man-hour units for such work, and furnish a print-out comparison for evaluation by management. Such comparisons can be made as each job is completed, or periodically during construction if the size of the project warrants such attention.

THREE avenues are available to the utility in establishing construction work measurement units which will be meaningful:

One, it is possible that retirement units can be made small enough to produce a measurement unit. There are a number of facets to this proposition which should be investigated thoroughly now that we have EDP. Among the problems at hand

is the greater detail necessary to maintain plant ledgers; the effect on operating expenses in the transition from larger retirement units to smaller units; and the usefulness of the "installed cost of a small retirement unit" when comparing.

In any study of construction costs, it is desirable to know the amount of the various cost components comprising a retirement unit. A successful bidder on a contract should be required to record his labor on the utility's time sheets so his information can be compared with the utility's standards. Is the job cheaper to do with the company crews or the contractor?

Two, a company can investigate and compile standards of performance—par—which also become the basis on which the engineer estimates the total cost of construction. Such a compilation of standards would include the labor for setting poles, possibly by classes or sizes; transportation expenses normal from one geographical area to another; and similar standards of quantity for material with a loading factor for all other cost components.

Three, pre-accounting and pre-engineering can be utilized. Work orders would enumerate the sheet numbers from a construction standards book. The numbers become the ticklers for EDP to translate into material requisitions printed in the bin order of the warehouse. The sheet numbers in the construction standards book show on their face the work measurement units to be used to estimate the cost of the job.

When the job is completed, the actual standard man-hours are compared with the work measurement units to learn if the job was over or under par. Here again, a contractor also would keep his records so they could be fed into EDP and be compared to the work measurement units on the sheets in the construction standards book.

Only construction work measurement units can show us the best and most economical way to do a job. We need this information if we are to maintain low rates for our customers and make return on stockholder investment more attractive.

"AMERICAN unions have long prided themselves on their progressiveness. Yet today they are the most conservative unit in our society, if by conservatism is meant 'opposition to change.' Their depression-born political and economic theories are quaintly outdated. They find themselves in the paradoxical position of engaging in a controversy which, if they win, they—and everybody else—lose. . . .

"Featherbedding is no panacea for employment problems. It is no road to self-induced prosperity. Each success a union may gain in continuing inefficient work practices takes labor and management just one step closer to a regimented economy in which the government dictates both prices and wages. If that comes, labor will have bargained away its real reason for existence."

—J. W. ORAM,
Vice president, Pennsylvania Railroad.

What's Wrong with Commission Regulation?

PART II. *An appraisal of criticisms and a conclusion in favor of the commission setup.*

By HARRY M. TREBING*

Recommendations for reforms of the utility regulatory process seem generally to fall short of workable methods that would improve regulation. Some criticism is justified, for commissions do have their deficiencies. Nevertheless an analysis of their past performance indicates that properly functioning commissions are still the best way to protect the public interest. Commissions should endeavor, however, to initiate programs of self-improvement.

In Part I of this article we sought to summarize the substance of current criticisms of commission regulation, the causal factors cited for allegedly poor commission performance, and the recommendations for improvement. The ultimate objective of all of these arguments is, of course, the modification of the commission system. Yet such changes have both good and bad effects, and these must be considered in appraising the merit of any criticism or any recommendation. Therefore, in the discussion which follows, the various arguments will be examined primarily within a context of the potential gains and losses to society associated with a departure from the commission system along the lines suggested by the critics.

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At the outset it is important to note that any major reorganization or alteration of the commission system must be justified in terms of a clear *net* gain to society. Such a net gain will arise only if the total gains from modifying commission control exceed all of the related offsetting losses or adverse effects. Each side of this "social" balance sheet will be analyzed in greater detail.

An Appraisal of Gains

Dealing first with the total gains or benefits that will arise from the modification of commission control, it may be assumed that these gains will arise to the extent that the principal criticisms

of commission regulation with respect to rate making, resource use, and abusive monopoly power are valid, and to the extent that these deficiencies will be corrected if particular recommendations are adopted. Granting this measure of total gain, the task then becomes one of estimating the economic magnitude of these criticisms and of ascertaining in advance whether the proposed cures will be effective.

Unfortunately, available factual data do not permit the compilation of estimates of this type which would possess any reasonable degree of accuracy or general applicability. As a substitute, generalizations might be based on case studies, for without doubt individual instances may be found to illustrate faulty commission performance with respect to the determination of rates, control over resource utilization, and the failure to check abusive monopoly practices. But are these individual cases unique, or are they representative of the performance of all regulated industries? The lack of precise statistical measures of the alleged malfunctioning of regulation makes the answer to this question largely a matter of personal conjecture. Under these conditions, the total gain or benefit from change is likely to be colored by an individual's predisposition for or against commission regulation; the same predisposition may govern speculation about the degree to which particular recommendations will eliminate the wastes supposedly associated with commission control.

ALTHOUGH information necessary for the precise quantification of total benefits or gains is missing, data are available on prices and productivity over long periods of time for both regulated and nonregulated industries. Used with discretion, these data may provide some limited insights into the validity and magnitude of those criticisms directed at rate making and resource use, and therefore the desirability of change.[1]

Long-run percentage increases in rates or prices for the various regulated industries are given in the table on page 740 for the period 1899-1953. In comparison with price increases registered in the nonregulated sectors of manufacturing and mining, the performance of utilities and transportation services is particularly gratifying. Of all the regulated industries, only natural gas exceeds the percentage price increase of the second quartile in the nonregulated sectors. That is, one-half of all the manufacturing and mining industries posted price increases greater than those of the regulated industries, excluding natural gas. Further, electricity and manufactured gas actually registered price decreases, a record matched by only one other industry (rubber products) in the entire economy. The relative performance of the regulated industries is enhanced even more when one notes that both the Consumers Price Index and the Wholesale Price Index increased by more than 200 per cent between 1899 and 1953,[2] a percentage increase exceeding those of all the regulated industries except natural gas.

FROM these data one may conclude that, relative to the prices of nonregulated

[1] The reader is referred to Part I of this article for a summary of criticisms of commission rate making and control over resource use, as well as a list of references for further elaboration.

[2] "Employment, Growth, and Price Levels." Hearings before the Joint Economic Committee, Congress of the United States, Part 2, 86th Congress, 1st Session, Washington, 1959, pp. 396-398.

market goods and services, the price of utility transportation services has become relatively cheaper over time. It is reasonable to assume, therefore, that the redistribution of purchasing power from consumers and competitive firms to the quasi-monopolistic regulated industries has not been as great as some of the criticisms of rate making would lead us to believe.

How much of the credit for the historical path of utility transport prices can be attributed to commission control, either directly or indirectly, is obviously speculative. Yet it seems reasonable to assume that prices would have been increased faster by monopolistic suppliers in the absence of regulation.

THESE trends, of course, do not indicate whether the resulting prices over time have been optimal with respect to allocation or utilization, or whether the resulting prices were consistent with the true cost of service. Nor is it possible to determine from these trends what prices would have prevailed had any of the recommendations been adopted. All that can reasonably be argued is that the redistributive evil usually associated with private monopoly has apparently been significantly checked by commission rate making. To the extent that the reader accepts this conclusion, the total gains or benefits stemming from the abandonment or modification of the commission system must be reduced.

Changes in Productivity

CLOSELY related to price is the question of resource use. Again, no precise measure is available of the extent to which the end product of regulation devi-

PERCENTAGE CHANGES IN PRICE AND PRODUCTIVITY
(1899-1953)

	Price	*Labor*	*Output Per Unit of Tangible Capital*	*Total Input*
Regulated Industries				
Railroads	91	337	161	290
Local Transit	170	251	495	272
Telephone	130	191	138	207
Telegraph	186	139	309	163
Electric Light & Power	—38	2,460	1,107	1,664
Manufactured Gas	—14	1,119	1,029	1,076
Natural Gas	342	392	—7	196
*Mining and Manufacturing**				
Q1	151	150	53	139.5
Q2	219	254	96	217
Q3	334	376.5	141.5	322
*Manufacturing***				
Q1	161.8	156	65	142
Q2	216.5	247.5	91.5	208.5
Q3	300	373	133	327

*Percentage changes for 25 mining and manufacturing industries divided in quarters. Quartile values are given.

**Percentage changes for 20 manufacturing industries divided in quarters. Quartile values are given.

Source: Data computed from: Solomon Fabricant, *Basic Facts on Productivity Change*, National Bureau of Economic Research, Occasional Paper 63, New York, 1958, pp. 336, 337.

ates from either optimal utilization or the evil of unrestrained monopoly. Nor is there sufficient information to permit judgment of the exact degree to which rate making has adversely affected resource use on a national scale. It is possible, however, to make some generalizations with respect to productivity changes in the regulated industries over time and to compare the results with parallel performance in nonregulated industries.

ALL of the transportation industries have shown continuous improvement in productivity over a long period. The sharpest rises have occurred in more youthful or fastest-growing industries, such as oil pipelines and airlines. Yet even in the long-established railroad industry, a steady increase in productivity has been a distinguishing characteristic. As one economist notes:

> Perhaps the most remarkable aspect of the upward trend of labor productivity in the railroad industry is its continuity and persistence . . . Why the rate of technological change in the railroad industry . . . should vary so little from decade to decade poses an interesting problem for the solution of which little evidence is at hand.[3]

But if the record of transportation as a whole was good, with productivity increasing at average annual rate of 2.2 per cent between 1889 and 1939, the record of the electric utilities must be judged as nothing less than outstanding. For the period 1902 to 1939, the average annual gain in output per man was 4.1 per cent.[4] Further, there appears to be little evidence of retardation in this rate of growth.

IN comparison with the market-controlled mining and manufacturing industries, the regulated industries have performed well. The table shows that in terms of the percentage change in output per unit of total input for the period 1899 to 1953, four of the regulated industries (electricity, manufactured gas, railroads, and local transportation) exceeded the second quartile of mining and manufacturing; one (telephone) approximated the second quartile; and two (telegraph, natural gas) exceeded the first quartile. In terms of output per unit of tangible capital, the record of the regulated industries is even more impressive. All of the regulated industries reported, except natural gas and telephone, exceeded the third quartile. That is, all of the regulated industries, except natural gas and telephone, registered a percentage increase in output per unit of tangible capital employed that exceeded the percentage increase recorded by 75 per cent of the nation's mining and manufacturing industries.

Perhaps most spectacular has been the percentage increase in productivity in electricity and manufactured gas. These two utility industries scored, respectively, the first and second highest percentage increase in productivity for tangible capital and total input of any single industry in the entire nation for the period 1899-1953.[5]

[3] *"The Transportation Industries, 1889-1946; a Study of Output, Employment, and Productivity,"* by Harold Barger, National Bureau of Economic Research, New York, 1951, pp. 110, 111.

[4] *"Output and Productivity in the Electric and Gas Utilities, 1889-1942,"* by Jacob Gould, National Bureau of Economic Research, New York, 1946, p. 137.

[5] In terms of the increase in output per unit of labor input, electricity ranked first, tobacco second, and manufactured gas stood third.

Of course, the mistake should not be made of imputing the relatively greater increase in productivity in certain of the regulated industries entirely to commission control. Credit also belongs, in part, to technological developments promoted by equipment suppliers and adopted by management, to the growth in markets that made economies of scale possible, and in certain cases to particular pressures that induced change. It can be said, however, that the regulatory environment has certainly not impeded technological change and the more productive use of resources over time. On the contrary, regulation has not only permitted greater productivity, but has transferred a significant portion of this gain forward to the consumer through the relatively low increase in utility and transportation rates.

What the rate of increase in productivity would have been in the absence of regulation, or if any of the recommended changes had been adopted, cannot, of course, be ascertained with any degree of certainty. Some evidence might be obtained from studies of the institutional competition that already exists around the geographic fringes of the major public power projects, but any attempt to generalize these results for the full range of utilities would be purely conjectural. For the present it may suffice to conclude that resources, when viewed in the aggregate over time, have been well employed under regulation. To the extent that the reader accepts this conclusion, the total gain or benefit from the abandonment or substantial modification of commission control must be reduced.

Adverse Effects of Change

From the total gains or benefits of changing the commission system must be deducted any losses or adverse effects associated with the adoption of alternative controls. Three general types of offsetting losses are possible. The first is a deterioration in the quality of service rendered. The second is an increase in the cost of service. Such an increase could come about because the change in control had increased the cost of capital, reduced management's ability to plan effectively, or limited the size of the market, thereby preventing optimum utilization of plant and the introduction of economies of

scale. The third type of offsetting loss is the reduction in the general level of national income stemming from a disruption of established savings-investment patterns.

The third type or form of loss deserves further comment. Utilities today provide a significant means whereby a large volume of saving, especially institutional funds, is channeled into investment. Also, utility investment expenditures constitute a significant portion of total private investment.[6] Any adverse changes in the regulatory climate that create a degree of uncertainty sufficient to disrupt these flows would result in redundant savings and decreased gross domestic private investment that would have to be offset elsewhere if national income were to be maintained. It is by no means certain that other outlets for savings and investment would be readily available short of a compensating increase in public spending. Further, any discouragement of private utility investment is particularly lamentable because of the stabilizing value of these expenditures relative to greater fluctuations of investment spending in other sectors of the economy.

ANY attempt to correlate these adverse effects with particular recommendations for changing regulation is bound to be speculative.[7] This, however, should not prohibit exploration of the possible ways in which losses could arise if a given set of recommendations were adopted.

As a point of departure, it seems reasonable to assume that those recommendations which deviate least from the accepted or traditional regulatory processes will minimize uncertainty and disruption, and therefore the prospect of unfavorable consequences. Into this category could be placed the recommendations of the Legislative Oversight Subcommittee outlined in Part I of this article.

The Administrative Court Idea

A MORE significant change would be the adoption of the administrative court as suggested by Professor Schwartz and others. Presumably this proposal would assure influence-free adjudication of disputes, yet such a body could very well tend, over time, to turn the focus of regulation away from flexible rule making and essentially legislative functions toward an arid legal formalism. Although the apparent result might be the creation of a courtlike atmosphere free from partiality, this same environment could stultify the initiative of those seeking to protect the public interest while at the same time imposing costly delays on firms seeking rate and service adjustments. An added feature of this antiseptic setting would be the carte blanche issued to interveners, professional experts, and others seeking to capitalize on drawn-out litigation. Under these circumstances, the cost of administration, when viewed from the sides of both the public and the company, could well be expected to rise. In addition, management's effectiveness would be debilitated as its energies were sapped in exhaustive legal controversy.

[6] McGraw Hill's economics department estimates that planned capital spending for all industries will be $37.3 billion for 1960; of this total, $11.96 billion will be spent in the utility and transportation industries. *Business Week,* November 14, 1959, p. 76.

[7] The reader is referred to Part I of this article for a summarization of the various recommendations that have been made in recent years for improving control over the utility and transportation industries.

Perhaps the most significant observation which can be made regarding the administrative court is one not readily definable in terms of losses. This is the possible ossification of control at the very time when the regulated industries stand on the threshold of a dramatic technological revolution. Whether the refined proceduralism of an administrative court would be able to meet the challenge of satellite-transmitted communications systems, or the problems attendant with the transport of natural gas by ship, and the direct conversion of energy to electricity, to cite a few examples, remains to be seen.

Executive Departments Overseeing Commissions

THE recommendation that commissions, at least at the federal level, be placed under major executive departments could reduce certain duplicating operational expenses. But savings of this nature would be minimal in comparison with the added administrative costs if the departments affected were to utilize the newly acquired commissions as a nucleus around which to build bureaucratic empires.

The transfer of commissions to departments in the executive branch, ostensibly in the interests of greater effectiveness, would also yield the parallel result of making them more directly susceptible to political pressures, thereby opening a whole new area of question and uncertainty. For instance, if cases of conflict were to arise between the commission and other bureaus within the same department, or between these bureaus and firms under commission control, the potential gain from the use of special pressures to achieve partisan ends would increase immeasurably. Also, rate making would tend to become even more the subject of partisan politics, as some candidates championed tight control while others espoused laxity.

WHAT would be the discernible losses in economic terms under such circumstances? The general public could suffer in at least three ways. First, utility management would be forced more and more to make large political expenditures to protect its interests, and one may safely assume that these costs would be passed on to the consumer through higher rates whenever practicable. Second, the cost of capital would tend to increase with the progressive deterioration of nonpolitical regulation, for although capital costs might conceivably fall with the election of politicians sympathetic to private utilities, the election of candidates of the opposite persuasion would increase both money rates and the general overall risk attached to utility investment.

Finally, it is not inconceivable that instability in the regulatory environment would lead to fluctuations in investment with concomitant changes in national income and a deterioration in quality of service.

What about Market Competition?

IN appraising the losses arising from the recommendation for greater market competition, it is first necessary to confine the discussion to those regulated industries where unrestricted entry and exit of firms, save for safety regulations, and a substantial degree of freedom in rate determination will create a market large enough to permit each firm to operate at optimum capacity without any deterioration in quality of service or undue price discrimination. At present, the transportation industries rather than the utilities would seem to fall into this category, but even here there is not sufficient information available to draw any hard and fast conclusions.

Assuming that commission controls would be largely abandoned, social losses or adverse effects could arise in a number of areas. There is no assurance, for example, that freedom of entry and exit would not lead to a deterioration in the quality or dependability of service, even in the supposedly competitive areas of motor transport.[8]

Similarly, greater market competition could conceivably increase the total cost of service to the public. The threat of loss of traffic to rivals could compel management to shorten appreciably its planning perspective. Attention would have to be given to more immediate problems of combating the tactics of competitors. As a consequence, expenditures for research and long-term capital investments would diminish in feasibility or attractiveness. A shortening of the planning period could also cause management to reduce its estimate of the size and certainty of the potential market which the firm might expect to enjoy, with the result that smaller operational units would be adopted, thereby denying the consumer the benefits of lower unit costs stemming from economies of scale.

FINALLY, although no general statement is possible with regard to the trend of the cost of capital under a program of greater competition, it may be safely assumed that no diminution of administrative costs will take place. Continuous surveillance would be necessary to guard against attempts on the part of carriers to restrict competition through mergers, consolidations, etc. Regulation must also exist to compel transport companies to establish and maintain through and joint rates. Similarly, because different types of transport are not perfect substitutes for all shippers even under a high degree of competition, the possibility of discrimination exists so control over maximum prices must still be maintained. In total, therefore, it is doubtful that administrative costs will fall under a policy of enforced competition. In fact, the converse may well be the case.

Thus, enforced competition is at best a mixed blessing. Whether such a policy will lead, in fact, to a deterioration in service, together with a reduction in tech-

[8] A stimulating critique of arguments for greater competition in the trucking industry is presented by George W. Wilson. See: "Current Criticisms of the Interstate Commerce Commission," by George W. Wilson, *Current Economic Comment*, August, 1959, pp. 11-15.

nological change and less efficient operation, or to a dynamic pattern of lower rates, expanding markets, and greater investment, is hard to determine. There is simply not enough information available about the effects of the changing structure and location of industry on the demand for transport, the degree to which various types of transportation services are substitutive, and the existence of economies or lack of scaled economies, to permit accurate prediction. For the present, any decision is largely a matter of judgment.

If the former set of conditions is assumed to be the more likely outcome, resultant offsetting losses would reduce the desirability of modifying the commission system.

ONE last observation must be made before leaving the recommendation for greater market competition. Competition as a means of control in the transportation field is by no means new. Competition was the accepted norm during much of the nineteenth century, but the product of this policy was price instability, overcapacity, and bankruptcies, which, in turn, led to consolidations, mergers, and the virtual elimination of inland waterway transport.[9]

Whether the conditions in transportation are analogous today, or whether the government can prevent similar results is a matter for further study; one may only add that the record of government efforts to date to maintain a high degree of market competition in other sectors of the economy can hardly be described as a spectacular success.

Institutional Competition

OF more direct relevance to the conventional utilities is the recommendation for "institutional" competition. Of course, institutional competition, or, more correctly, rivalry, already exists to a limited extent in the field of electricity production.

The question is, can this form of rivalry be generalized as a form of control supplanting commission regulation to a large degree? There are two principal bases for arguing that this objective cannot be achieved.

[9] For an authoritative analysis of the competitive period, see *"Public Utilities in American Capitalism,"* by Martin G. Glaeser, Macmillan, New York, 1957, Chapters 4, 5.

First, institutional competition is premised on the assumption that different institutional forms of organization can be compared and a meaningful yardstick derived. Comparability, however, is extremely difficult to obtain. To offer a workable criterion, different firms must have comparable cost characteristics and expenses, reasonably identical markets, and approximately the same output or product mix. Obviously, it would be illogical to compare the rates or unit costs of a private utility with a high proportion of equity capitalization and therefore income tax payments with a municipal plant financed through tax-exempt revenue bonds. Similarly, it would be unfair to compare a public project serving a rural market with a very thin customer density against a private utility serving a dense urban area. But if the problems of comparability exist within the field of electricity, they become legion when one moves to gas production and transmission and communications. In these areas, one is faced not only with the selection of some base, but also with the absence of nonprivate firms.

A SECOND limitation of institutional competition is its inability to accomplish in a positive fashion the ends which it seeks. Under market competition, profits are the stimulus and losses the penalty that eventually drive the inefficient out of business. Institutional competition, on the other hand, possesses at best hazy stimuli and almost completely ineffectual penalties.

Assuming that a reasonable yardstick shows one firm to be less effective in terms of price and cost than its counterpart, what action can be taken? Certainly the firm cannot be forced to suspend operations and the service withdrawn. Aside from reprimands and moral suasion, the only alternative is to take the property by eminent domain, if private, or to sell the plant to private interests if already public. In either case, the magnitude of the step, combined with public apathy, procrastination, or a morass of court delays, would assure that in all but the most flagrant situations institutional competition would accomplish little or nothing.

GIVEN these limitations, any general attempt to enforce institutional competition is certain to lead to adverse social effects or losses. If the yardstick is based primarily on rates, then service may be allowed to deteriorate in the interests of low prices. Service may also be adversely affected if a particular utility firm falls behind the yardstick standard and, rather than endeavor to improve performance, chooses to recapture its capital through deferred maintenance and replacement. But perhaps the most telling effects of institutional competition will be on the cost of capital, especially for private utilities. The threat of public ownership, whether real or illusory, will give rise to greater feelings of uncertainty among investors, thereby leading to a demand for a greater return on capital devoted to these enterprises. Repercussions, however, would be cumulative and would carry beyond this point, for once the cost of capital increases, the relative yardstick performance of private utilities worsens, thereby triggering a fresh round of anxiety among investors. Ultimately, private utility investment could become less and less profitable as capital costs rise with consequent depressing effects on investment spending and national income.

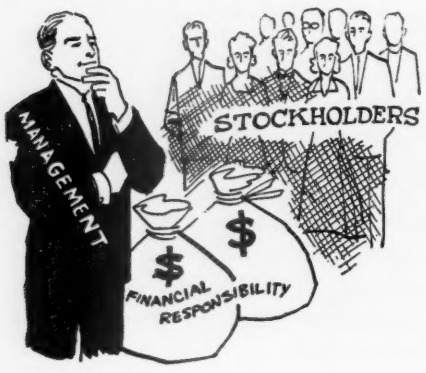
Rather than institutional competition, per se, public policy would seem to gain much more by permitting all types or forms of utility organization to prosper side by side, with the exact form being determined by the needs of the region and the wishes of the public.

Some Suggestions by Renshaw

ONE critic, Edward Renshaw, it will be remembered, advocated granting voting control in utilities to consumers as an alternative to direct regulation. Voting control would be given to either the general citizenry through municipal elections, or to a group of citizens forming a voting trust. The complexities of managerial decisions would certainly seem to invalidate the effectiveness of municipal elections as a means of control. A voting trust, or possibly a consumers' council, would have a great deal more to commend it. Yet even here there is always the danger that a lack of appreciation of the problems would unduly encumber operations and lead to social losses. For instance, a consumer trust or council could be overly optimistic and compel service for which it would later be unwilling to pay, either through adequate rate increases or tax subsidies. Conversely, a consumer group might be unduly conservative, and, for fear of having to increase rates, prohibit or retard the introduction of innovations.

In either case, the injection of consumer irrationality, like the injection of politics, creates a greater degree of uncertainty and therefore higher capital costs on the one hand, and an impediment to managerial efficiency on the other. One cannot help but conclude that a properly functioning commission staff is a far more effective means of giving voice to consumer interests.

A SECOND alternative proposed by Renshaw would give consumers the right to buy common stock in the utilities serving them at a certain price above par value. This recommendation would supposedly protect the consumer against the payment of excessive dividends by the utility, for if consumers felt that profits from rates were unreasonably high, they could recoup their losses through stock purchases at a predetermined price. The apparent result would be that dividends, and therefore the cost of equity, would be held to modest levels since the board of directors' incentive to pay out surplus profits through dividends would be dissipated. However, rather than reduce or minimize dividends, this recommendation would actually increase the cost of equity, and therefore the overall costs of capital, in all but extreme cases. The explanation is simple: Consumers would become a differentiated class of investors given the special option of purchasing stock at a particular price. Assuming that the number of consumers is reasonably large, neither the consumer nor the general investing public will pay a



market price for the stock in excess of the consumers' option price. Accordingly, as the utility is compelled to issue new stock to finance expansion, investors having been denied the possibility of gain through price appreciation will demand compensatingly higher dividends. Further, the demand for increased dividends will become progressively stronger as the market price nears the consumer purchase price.

In addition to increasing the cost of capital, this recommendation also suffers from two other defects. First, it assumes that the typical consumer is able or willing to purchase utility stock. Second, it does little to correct extortionist rates that are not reflected in excessive dividends and therefore higher stock prices. Both are significant oversights.

RENSHAW'S third alternative involves transferring the common stock of private utilities to their consumers. Current stockholders, in turn, would be compensated by preferred stock or bonds yielding a fixed return. The gains or losses from risk bearing would then be passed on to the consumer, with any gains or dividends preferably taking the form of lower rates. While superficially simple, this argument is fraught with administrative and operational difficulties that could affect the public adversely. The determination of an equitable conversion rate and the impact on existing holders of debt capital are but two of the problems that can be expected to arise. In addition, a new capitalization composed of debt and a rather nebulous public equity would, in all probability, increase the cost of any future debt flotations. Administration of the return on public equity would constitute a special problem, for the dividend, whether in the form of a rate reduction or a rebate, would have to be placed in the hands of each consumer. In a large dynamic market with a continually changing content, this task could become herculean.

With regard to these last three recommendations, one is inclined to conclude that, although stimulating, they are essentially no more than complex machinations for accomplishing ends that can be handled in far more direct fashion by the regulatory commissions.

A Positive Program

IMPLICIT in much of the preceding discussion has been the author's belief that a properly functioning commission is probably the best way to protect the public interest, from the standpoint of both practicality and the minimization of uncertainty. Admittedly, the existing system has not always performed well with respect to rate making, effective resource use, and the control of abusive monopoly practices. Yet, at least with respect to prices and productivity, the long-run record has been more than creditable. In addition, there is no argument or evidence sufficiently conclusive to prove that commission regulation cannot be improved, or that the concept is unworkable.

However, it is not enough to say that commission control has worked, or that it can be made more effective; a positive program aimed at improvement must be instituted by the commissions themselves. The elements of such a program of improvement may be built around the most desirable attributes of a highly effective regulatory system.

The first requirement of such a system is that it possess adequate resources

and support, which may be taken to include not only a sufficient budget and staff, but also public appreciation of the tasks of regulation. Public support in this sense is particularly important in view of the traditional American predisposition against governmental intervention. Hopefully, this can be accomplished through education rather than through the less pleasant alternatives of partisan propaganda and politics.

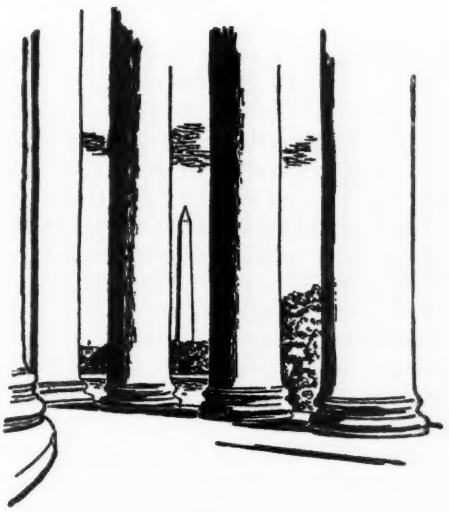
Flexibility is the second attribute of a successful regulatory system. The term means, of course, not only flexibility in an operational sense, but also the ability of the commission to adjust to changing economic and technical conditions. A new technology may, for instance, permit commission supervision to be relaxed in favor of a greater reliance on competitive forces. Conversely, change may dictate that new activities be given public utility status in order that the public interest may be properly protected. In either case, the effective commission must be willing and able to adjust. This process requires, however, an understanding legislature and judiciary, and, perhaps even more important, sufficient knowledge about the regulatory environment and commission employees with initiative and imagination.

A THIRD attribute is a formulated, although not static, standard of the public interest. The regulated firm has a clear set of objectives oriented ultimately around net profits. The commission, on the other hand, has no such clear standard by which to judge its objectives or achievements. To fill this gap, commissions have traditionally relied upon reasonable judgment, which, in turn, is the product of past decisions, whatever data the various parties have supplied, and an intuitive conception of equity. But these efforts may not always be an accurate measure. A more adequate public standard could be derived from intensive research into public needs, the emergent economic and technical characteristics of the industries regulated, and a greater knowledge of the general economy. Given this type of information, commissions would be able to develop a set of criteria to serve as a framework within which to evaluate the factors that bear on the public interest as well as the ramifying effects of decisions.

The fourth attribute of a successful system is that its regulatory techniques reward management for superior efficiency and penalize it for incompetence. The present system of cost-plus regulation for the utilities offers little in either of these respects, thereby lending itself to the objection that commissions must always duplicate management functions if regulation is to be successful. Accordingly, commissions might be well-advised to explore possible ways in which incentives and penalties could be introduced into the ratemaking process. To the extent that these efforts are successful, the motive for gain becomes a force complementing rather than encumbering regulation.

SUCCESS or failure in the continuous task of improving commission regulation along these lines should be of concern to everyone. The general public, the commissions, and the regulated firms all have a "vested interest" in the outcome. For the former group, failure means added uncertainty and social costs. For the latter two groups, failure means possible extinction.

Washington and the Utilities



Two New Members for the FPC

It was Senator Dodd (Democrat, Connecticut) who chilled the administration's hopes of clamping the cover down on the Federal Power Commission controversy with two brand-new appointments. Senator Dodd had nothing against the two new appointees, Thomas J. Donegan of Brooklyn, New York, and Paul A. Sweeney of Washington, Pennsylvania, who has been a career attorney with the government service since 1933.

But Dodd, who had been leading the campaign to have William R. Connole reappointed to the FPC, saw an opportunity to press his feud against that agency even if it did Connole little good. In a speech prepared for delivery in the Senate, Dodd demanded that the Senate hold up action on Eisenhower's two new nominations to the FPC until he explains why he dropped Commissioner Connole from the agency. Dodd said Congress must "prevent the further deterioration of the independent agencies to bring about their reform, and to enforce upon these commissions a philosophy that places the public interest first and gives the consumer the protection these agencies were set up to provide."

"If the Senate permits the President to dismiss a high commissioner with proven mastery of his field in favor of a man with no experience or qualifications of any kind for the post," Dodd said, "it is failing abjectly in its responsibility to protect the public."

Eisenhower named Donegan, a political independent, to replace Connole, an Eisenhower appointee whose five-year term expires June 22nd. The President also nominated Sweeney to fill out the FPC term of the late John B. Hussey. Like Donegan, Dodd is an ex-FBI agent but the Senator said he did not think that the New Yorker's background "prepared him" to perform the highly complex and specialized duties of a Federal Power commissioner." Dodd quoted Donegan as saying, "I have never had anything to do with utilities outside of paying my gas bill."

The Senator described Connole, a 37-year-old political independent from Connecticut, as the consumer's best friend on the FPC. He noted Connole had

served as an attorney for the Connecticut Public Utilities Commission before his appointment in 1955. Connole himself has denied representing any special group, consumers included, while on the commission.

Chairman Oren Harris (Democrat, Arkansas) of the House Subcommittee on Legislative Oversight investigating the FPC said he was glad the agency's membership was being brought up to full strength. He declined comment on the two nominees because he did not know them.

The FPC has come under some criticism recently because of behind-the-scenes contacts made with some members by Thomas G. Corcoran, Washington attorney interested in a pending gas rate case.

White House Press Secretary James C. Hagerty said that Mr. Eisenhower, in submitting the nominations for Senate approval, designated neither of the two appointees as representative of the consumers or the oil or gas business. "The President does not think this is the way it should be, although it has been the practice in the past," Hagerty said.

He said that while it was true consumers make up the largest segment of the country, the President thought regulatory commission members should represent everyone. The exception will be some federal commissions to which the President is required by law to designate certain appointees as public or industry representatives.

ANOTHER reason why the Donegan-Sweeney appointments may not have clear sailing in the Senate was the reported reaction of the chairman of the Senate Interstate Commerce Committee, Senator Magnuson (Democrat, Washington). He was supposed to have been behind the proposal—which was given wide publicity—to have the committee's counsel, Harold I. Baynton, named to one of the two vacancies. If Magnuson were so minded, he could probably stall confirmation proceedings until the Senate gets ready to adjourn for the political conventions in July. He could probably get help in the Senate, such as Senator Dodd.

Senator Joseph S. Clark (Democrat, Pennsylvania) recalled that as mayor of Philadelphia he testified against the gas bill.

"I know now that what that bill would have done by legislation the Federal Power Commission has done by administration," Clark said.

Clark joined other Democrats in endorsing Dodd's demand that the two appointees not be confirmed until the reason for Connole's dismissal be determined. Senator Monroney (Democrat, Oklahoma) was equally outspoken.

Senator William Proxmire (Democrat, Wisconsin) said Connole's replacement is a "very legitimate issue" for the 1960 campaign. Proxmire cited Connole's record in standing on the side of consumers in utility rate cases.

There is the added speculation that the Democrats in the Senate are already putting available jobs, requiring Senate confirmation, into deepfreeze in high hopes that a Democrat will be elected to the White House next November and have that many more plums to hand out. If confirmation is delayed, the White House could, of course, make recess appointments so that the FPC could carry on its work.

ON the House side, Chairman Harris is also having his problems keeping his Legislative Oversight Subcommittee on the track. With all the controversy going on about the regulatory commissions, there is a tendency for the extreme "reformers" to run wild with proposals to

tear up the commissions or otherwise drastically reorganize these agencies. Eisenhower doubtless would veto any such extreme legislation if it were enacted. But Harris does not seem to want to have his committee involved in hasty or ill-advised legislation which might injure the regulatory commissions instead of helping them. As in the case of senatorial confirmation of the new FPC appointments, a stalemate terminated by adjournment may be the temporary answer in the House.

Businessmen Support Commissions

A TWO-YEAR study of the effectiveness of regulatory commissions, made by the New York Chamber of Commerce, was released early this month and wholeheartedly supported them. It is conceded that there are "serious deficiencies" in the operations of federal and state regulatory agencies, but the report warned against drastic legislation which would bar "proper informal contacts." It said it would deplore the enactment of legislation which would unduly judicialize the commissions or preclude proper informal contacts between the regulators and the regulated. The study said such contacts can contribute greatly to the understanding by each of the problems of the other and avoid unnecessary delays. The chamber said it believed the solution was the selection of better officials to operate the regulatory agencies.

The study blamed commissions for the fact that adequate capital is not being set aside by utilities to replace property that now sells at higher prices. It pointed out that many commissions allow companies to take depreciation allowances only on "so-called original cost." The effect, the study reported, "is continuous expropriation of the investor's dollar." The New York chamber predicted a continuing expansion of regulation.

In discussing deficiencies of the agencies generally, the study held that old regulatory concepts about monopolies are obsolete. "The assumption that low profits mean low prices is wrong," it added, and held further that "too much regulation inevitably leads to inefficiency and delay." More emphasis on long-run considerations rather than short-term advantage to the consumer was urged. The chamber expects to circulate 10,000 copies of its study to members of federal regulatory agencies, members of Congress, and state regulatory bodies across the country.

THE study was carried out jointly by the chamber's committee on public service, headed by Leslie T. Fournier, vice president of the Panhandle Eastern Pipe Line Company, and the committee on industry, trade, and transportation, headed by Lester A. Crone, president of the Buffalo Brake Beam Company. Each group has ten members.

The committees asserted that "a reexamination of regulatory concepts in the light of current economic, technology, and competitive changes would justify in some areas elimination of regulation, and in other cases modification designed to encourage desired growth." The study criticized the high turnover of agency personnel, and said able men "find more rewarding positions in private industry." It added that "courageous men frequently found themselves the targets of political pressure groups."

Air-line Fare Increase

FARE increases of at least 2 per cent and possibly more seem likely for the na-

tion's 12 major airlines. The Civil Aeronautics Board announcement has declared that air-line fares from now on will be judged on the basis of rate of return on investment. The board will allow the 12 domestic trunk lines, as a group, a 10.5 per cent rate of return, but permit a somewhat higher rate for the eight smaller airlines with a somewhat lower rate for the "big four." The "big four" are American, Eastern, Trans World, and United. The effect of this policy on fares could not be immediately determined. Under old fare increase proposals, however, the airlines wanted to raise fares 5 per cent to 10 per cent. Under the new concept of allowing airlines a net income of 10.5 per cent on their investment, fares should increase at least 2 per cent. Airlines in the past have argued for a 12 per cent return.

The standards that the CAB said it would employ in computing rate of return on investment include the following: (1) Investment bases will embrace equipment purchase deposits but exclude reserves for deferred income taxes and certain minor items. (2) Depreciation expense on all flight equipment will be based on the straight-line method. (3) Depreciation for piston-powered equipment will be computed over a seven-year life with a 15 per cent residual value, and for air frames of turbine-powered planes over a ten-year life with a 15 per cent residual value, and with turbine engines over a five-year life with a 15 per cent residual value. The CAB will announce its remaining standards for computing rate of return at a later date.

THE CAB announcement of a new rate of return will have no effect on the fate of financially entangled Capital Airlines. The board refused to give Capital Airlines a temporary subsidy. If no subsidy at all is forthcoming Capital will be foreclosed on the basis of the suit filed by Vickers-Armstrong, Ltd., for $33,842,000 in outstanding notes. However, Capital could file a voluntary bankruptcy proceeding. Or it could, as its chairman of the executive committee asserted, file for voluntary reorganization under Chapter 10 of the Bankruptcy Act. This proceeding would treat the company as a going concern and attempt to keep it alive while it worked out a reorganization plan under which the note and bondholders would get as much as assets permitted.

Interior Claims Fish Control

COMPLICATIONS in relations between the Interior Department and the Federal Power Commission may have been started by Secretary Seaton's recent strong statement opposing Idaho Power Company's petition to the FPC to modify fish passage plans previously ordered for the Oxbow project in the Snake river.

Seaton quoted § 18 of the Federal Power Act which gives the Department of the Interior authority to stop the FPC from licensing a dam destructive of fish life. He said the section does specifically state that FPC "shall require the construction, maintenance, and operation by a licensee at its own expense of . . . such fishways as may be prescribed" by the Secretary of the Interior.

Seaton also pointed out, in view of this section, that he doubted that the FPC would wish either to prescribe fish handling facilities or to permit the modification of such facilities without positive recommendation from the Interior Department. He said the law leaves little doubt but that his department has the authority to dictate what fish passage facilities should be incorporated in FPC orders.

Telephone and Telegraph

Ohio Bell Proposes Cost Study

THE Ohio Bell Telephone Company has proposed that the Ohio Public Utilities Commission undertake a cost study of the equipment and time used by the General Telephone Company of Ohio when the two systems work together to complete a long-distance call. The commission has agreed to a trial study without any commitment that it will finally accept the results as proper cost evidence.

As previously reported in this column (April 28th issue of the FORTNIGHTLY) a variance of opinion has arisen between the Bell system and the United States Independent Telephone Association over which of two separations manuals should be used in determining toll compensation among such companies. Last October USITA released its own manual for the association. The USITA manual was approved by various committees and was reviewed by representatives of the Bell system. The *"Bell-Independent Individual Cost Study Manual for Class A and B Telephone Companies"* has been distributed through associated Bell companies and is available to independents that might want to use this manual.

Ohio Bell's request to the state commission is an effort to resolve the conflicts between Bell and General Telephone Company, and to some extent with other independent companies, including the USITA. Ohio Bell has suggested that the proposed study might be made jointly. This proposal came during the second day of a commission hearing on a long-distance call revenue dispute between the parties. Ohio Bell and General Telephone are the two largest companies in the state of Ohio. The hearing has been recessed until May 24th when the cross-examination of General's witnesses was scheduled to start.

HOWEVER, as the result of a ruling by the commission on Ohio Bell's request for a cost study, there may be further delays in the presentation of the rate case, pending the completion of the Bell company's analysis in which the General Company did not agree to participate actively. The General companies in Florida and Kentucky have made similar requests to the respective state commissions for those states for a regulatory decision on the proper form of cost separation. Heretofore, such matters have usually been settled by negotiation between the Bell and independent companies concerned. It is understood that West Coast Telephone Company of Washington state has a similar request for regulatory determination pending before the state commission.

AT&T President Outlines Business Goals

LATE last month Frederick R. Kappel, president of American Telephone and Telegraph Company, spoke at Columbia University as part of the McKinsey Foundation lectures on "Vitality in a Business Enterprise."

Mr. Kappel's address concerned "Goals That Build the Future" and he stated that the goal of providing good, cheap, fast, world-wide service had produced action in several fields in the AT&T operation. New technical knowledge was required and the Bell system went into the field of basic research in order to make its dreams become realities. It was also necessary to have a single interconnected service; however, duplicate competing systems could not merge due to legal restrictions. It was, therefore, necessary to convince the general public that the law should be changed and this was accomplished. The last broad result of Bell's goals was a policy of top-flight service and candid disclosures about the company business. This, Mr. Kappel stated, was a "radical departure" from the usual business practices of the times. These latter two commitments have produced a responsibility to the public that has invigorated the Bell system for half a century.

IT is believed by Mr. Kappel that business managers must constantly be asking if goals are adequate, and he listed some 15 criteria to help in making such judgments. One of the most interesting in this list was whether your specific business is helping to influence favorably the climate in which all business operates. Regarding this he stated:

> I believe the facts of American business achievement justify a much better climate of public opinion than we have had. I cannot help thinking, however, that we businessmen have not been very effective in our efforts to improve it. Are we really trying to bring about an atmosphere in which all business can operate better? Or do we tend to think mainly of our own interests?

In conclusion he noted that as head of AT&T he is responsible for today's results, but in order to assure continued success the greater challenge of building vitality for the days ahead must be met.

Telephone Tax Advocated in New Jersey

GOVERNOR Meyner of New Jersey has proposed a 10 per cent state tax on local telephone service should Congress fail to renew its federal taxing authority. The state of New York has already enacted such a tax (FORTNIGHTLY, May 12th, page 686). In a special message to the New Jersey legislature the governor suggested the telephone tax as an alternative to his recommendation for an increase in the state cigarette tax from five to six cents a pack. The aim is to produce some $8.5 million annually for the financing of state institutional construction. The telephone levy would be expected to yield between $15 and $20 million a year for various state activities.

New Jersey Bell Telephone Company has been active in the fight against the excise tax even before Governor Meyner sent his proposal to the state legislature. The Bell company has contacted all the members of the state legislature to record its opposition to the levy. The primary point of Bell's opposition is the belief that continuation of the tax at a state level would harm the business climate by plac-

ing New Jersey at a competitive disadvantage with states which do not impose such a levy. Another strong selling point would be the immediate lowering by 10 per cent of all customer bills for local service. Congress has, at this writing, still not taken any action on renewing the excise tax. The belief continues, however, that the federal tax will not be permitted to expire.

Justice Department Backs Wire-tap Bill

A BILL (S 3340) introduced by Senator Keating (Republican, New York), which would permit state wire tapping under court orders, has been endorsed by the Department of Justice. Senator Keating's proposal states that once it has been established by state courts that the interception of wire or radio communications could bring about disclosures of crime, then no law of the United States shall be construed to prohibit such interception and the use of such evidence in court.

Keating views the Justice Department's endorsement as "very heartening," and he has stated that "there is no reason whatever for giving criminal evidence transmitted by telephone blanket immunity, as is the case under present law."

Solar-powered Call Box for Stranded Motorists

THE Hoffman Electronics Corporation has developed a wireless solar-powered call box that promises to add much to highway safety and convenience. The unit consists of a miniature transmitter powered by nickel-cadmium batteries recharged from solar energy. Company officials recommend that units should be mounted every quarter-mile on existing light poles. The transmitter would broadcast an FM radio signal, giving the location and type of service needed when a motorist pushes one of four buttons labeled "police," "fire," "ambulance," or "service truck."

Anyone who has been stalled on a lonely stretch of superhighway can easily see the advantages of such a system. Also, all too often auto accidents occur and lifesaving minutes go by before a passing motorist or cruising police cars come on the scene. Company officials estimate that the cost of the transmitting unit would be about $300 each and the receiver would range from $4,000 to $10,000, depending on the complexity of the service desired.

Low-cost Pay TV Announced

A NEW approach to pay TV, making use of the thousands of master TV and community systems operating in the United States and Canada, has been developed by Blonder-Tongue Laboratories, Inc., of Newark, New Jersey. According to company spokesmen the new system can be put into operation immediately and economically wherever master TV and community TV systems are in existence. It is believed that the new system represents the simplest and most economical approach yet devised for pay TV and for bringing educational, scientific, medical, and civilian defense programs to preselected audiences. Blonder-Tongue Laboratories state that it is the first system to utilize existing master TV and community installations throughout the continent. Existing channels are employed on conventional TV receivers and all existing equipment from transmitter to receiver is utilized. No form of signal scrambling is involved, thereby simpliying the setup.

Financial News and Comment

By OWEN ELY

A 7.9 Per Cent Average Annual Gain in Gas Revenues in 1960's Forecast by AGA

WISTER H. LIGON, president of the American Gas Association, recently gave a talk before the New York Society of Security Analysts in which he made a number of interesting forecasts regarding the future of the industry. The figures shown in the table on page 759 were contained in the charts presented to the analysts, and we have added the indicated annual rate of gain for the postwar period and the coming decade, on a compounded basis.

It is interesting to note that the estimated 5.9 per cent annual rate of gain in therms during the 1960's is about the same as the median forecast for kilowatt-hour sales made by Ebasco Services in its December, 1959, "Business and Economic Charts," as follows:

	Kwh. 1960	*(Bill.) 1970*	*Compounded Annual Rate Of Gain*
Minimum Population Forecast	750	1,280	5.5%
Maximum Population Forecast	760	1,380	6.2
Median Rate of Growth	755	1,330	5.8

Mr. Ligon stated that he was confident that the net income of the gas industry would keep pace with physical and customer growth, but that no specific projections of net earnings had been developed. He reminded the analysts that "despite its presumably protected position as a regulated public utility, the gas industry is far from immune to competition. We are already encountering stiffer competition than we have ever faced in our 144-year history—and there's every indication that the competition we've felt in recent years was just a rehearsal for the nineteen sixties."

THIS competition is, of course, mainly in the use of appliances, and thus far the gas industry has given a good account of itself. Sales of water heaters

DEPARTMENT INDEX

	Page
A 7.9 Per Cent Average Annual Gain in Gas Revenues in 1960's Forecast by AGA	758
Table—April Utility Financing	760
Atomic Power Program Rejuvenated, Bigger Plants Planned	761
Chart—Historical Yield Trends of Utility Securities	762
Mystery of the Moss Committee Chart Solved?	764
Tables—Financial Data on Gas, Telephone, Water, and Transit Utilities	764, 765, 766

now reflect a 4-to-1 ratio to similar electric appliances compared with a 2-to-1 ratio in 1949. While electric clothes dryers in 1949 outsold gas models 4-to-1 they now have only a 2-to-1 lead. Electric cooking has made some progress, but the rate of gain indicates that the electric utilities will not "capture" this market for many years, if at all.

The gas industry, in order to maintain or improve its position in this competitive appliance race, has launched an accelerated research program to develop and perfect gas appliances. Last year, the Battelle Memorial Institute was commissioned to examine the industry's research needs and activities and develop recommendations for long-range programs. In line with Battelle's recommendations, AGA increased its research budget by 40 per cent; it is spending $2.5 million this year for association-conducted research and development projects, compared with $1.8 million in 1959. The goal is to triple the industry's research activities within the next five years.

AMONG the latest gas innovations in domestic appliances Mr. Ligon mentioned a fold-away gas oven, complementing the fold-away top burners already on the market; a new high-performance burner for gas ranges, considerably smaller than those in use and permitting greater heat flexibility; and a thermister "sensing unit" only half the size of a dime, which automatically controls the flow of gas to maintain the right temperature for any type of cooking. A new transistorized and battery-operated spark igniter for gas appliances is also being developed for use in an all-gas home: The battery can be recharged thermoelectrically from gas heat.

RESEARCH is also under way on a combination gas oven and water heater, the latter fitting into a small area under the oven. The "Gas Multimatic Wall" goes still further, incorporating in one unit all essential gas appliances—range, water heater, refrigerator, washer-dryer, furnace, and (if desired) the air conditioner; this was demonstrated in New York some time ago and is being discussed with manufacturers. A small all-gas, warm-air furnace using thermoelectricity to power its own forced-air fan is being developed. Thermoelectricity may also be applied to other gas appliances, such as circulating fans or temperature controls, so that their use would be completely independent of outside electric power which is vulnerable to storm conditions.

The Whirlpool Corporation, which several years ago bought the Servel refrig-

Year	*Customers (Mill.)*	*Miles of Main (Thous.)*	*Sales in Therms (Bill.)*	*Revenues (Bill.)*	*Gross Plant (Bill.)*
1945	20	310	26	$ 1.2	$ 5
1950	24	390	43	2.0	8
1955	28	500	67	3.5	14
1960E	33	620	93	5.6	22
1965E	38	760	125	8.2	35
1970E	44	910	165	11.9	49
Est. Aver. Annual Incr.:					
1945-60	3.4%	4.7%	8.9%	10.8%	10.4%
1960-70	2.9	4.0	5.9	7.9	8.3

E-Estimated.

erator rights, has a completely new gas refrigerator in production; it is continuing its research in the use of fans and blowers, which should provide better heat transfer and reduce the size of operating components, as well as giving better performance during very hot summer weather. The Norge division of Borg-Warner is now producing gas refrigerators and clothes dryers, as well as ranges and water heaters.

FURTHER progress is being made in gas air conditioning. Continental Motors has developed a new gas-fueled engine for use in air conditioning, said to have great reliability and low operating cost. Robertshaw-Fulton is expected to begin marketing next year the free-piston engine compressor developed by the AGA for incorporation in air-conditioning systems. Bryant Manufacturing has developed an outdoors self-contained refrigeration system, requiring no water supply or cooling tower, which will supply chilled water to an inside cooling coil for residential air conditioning.

Arkla Air-conditioning Corporation, which took over Servel's plant and product and has been manufacturing gas air conditioners for several years, will soon go into production with a new direct-fired chiller-heater unit incorporating the benefits of a $1 million research program.

APRIL UTILITY FINANCING

PUBLIC OFFERINGS OF ELECTRIC AND GAS UTILITY SECURITIES

Date	*Amount (Mill.)*	*Description*	*Price To Public*	*Underwriting Spread*	*Offering Yield*	*Aver. Yield For Securities Of Similar Quality*	*Moody Rating*	*Success Of Offerings*
		Bonds and Debentures						
4/6	$25	Carolina Power & Light 1st 4⅛s 1990	100.39	.70C	4.85%	4.50%	Aa	d
4/7	30	Commonwealth Edison 1st 4⅛s 1990*	100.00	.94C	4.63	4.48	Aaa	d
4/8	20	Alabama Power 1st 5s 1990	100.31	.76C	4.98	4.77	A	d
4/12	18	National Fuel Gas S.F.Deb. 5⅛s 1985	101.06	.79C	5.05	4.55	Aa	d
4/14	15	Iowa-Illinois G.&E. 1st 5s 1990	101.00	.79C	4.94	4.55	Aa	d
4/21	20	Puget Sound P.&L. 1st 5⅛ 1990	101.12	.82C	5.30	4.80	A	d
4/21	35	Transcontinental Gas Pipe Line 1st (s.f.) 5¼s 1980*	99.00	1.00N	5.33	4.97	Baa	a
4/27	15	Metropolitan Edison 1st 5s 1990 ...	100.78	.65C	4.95	4.56	Aa	c
4/29	30	Cincinnati G.&E. 1st 5s 1990	101.96	.88C	4.88	4.53	Aaa	b
		Preferred Stock						
4/14	4	Orange & Rockland Utils. 5% Conv. Pfd.	100.00	2.50N	5.00	—	—	
		Common Stocks—Offered to Stockholders					*Earn.-Price Ratio*	
4/27	18	Wisconsin Electric Power	32.25	**	5.58	—	8.93%	—
		Common Stocks—Offered to Public						
4/13	11	West Penn Electric	36.75	1.23C	4.63	—	6.41	a
4/13	1	California-Pacific Utils.	19.00	1.05	4.73	—	6.85	a
4/21	16	Transcontinental Gas Pipe Line ...	20.25	1.15N	4.94	—	6.17	a
4/21	17	Middle South Utilities	26.13	.94C	3.83	—	5.35	a

C—Competitive. N—Negotiated. a—The issue was reported well received. b—The issue was reported fairly well received. c—It is reported the issue sold somewhat slowly. d—It is reported the issue sold slowly. *Nonrefundable to 1965. **Not underwritten.
Source, Irving Trust Company

Arkla described the new system as only the beginning of a complete line of gas-fired all-year air conditioners which will offer the residential, commercial, and industrial markets both variety of equipment and versatility of application.

There have also been interesting developments in the commercial and industrial fields which should greatly expand the use of gas in those areas. For example, the steel industry is expected to use gas in blast furnace operations, with a considerable increase in efficiency.

TURNING to the internal problems of the industry, Mr. Ligon stated:

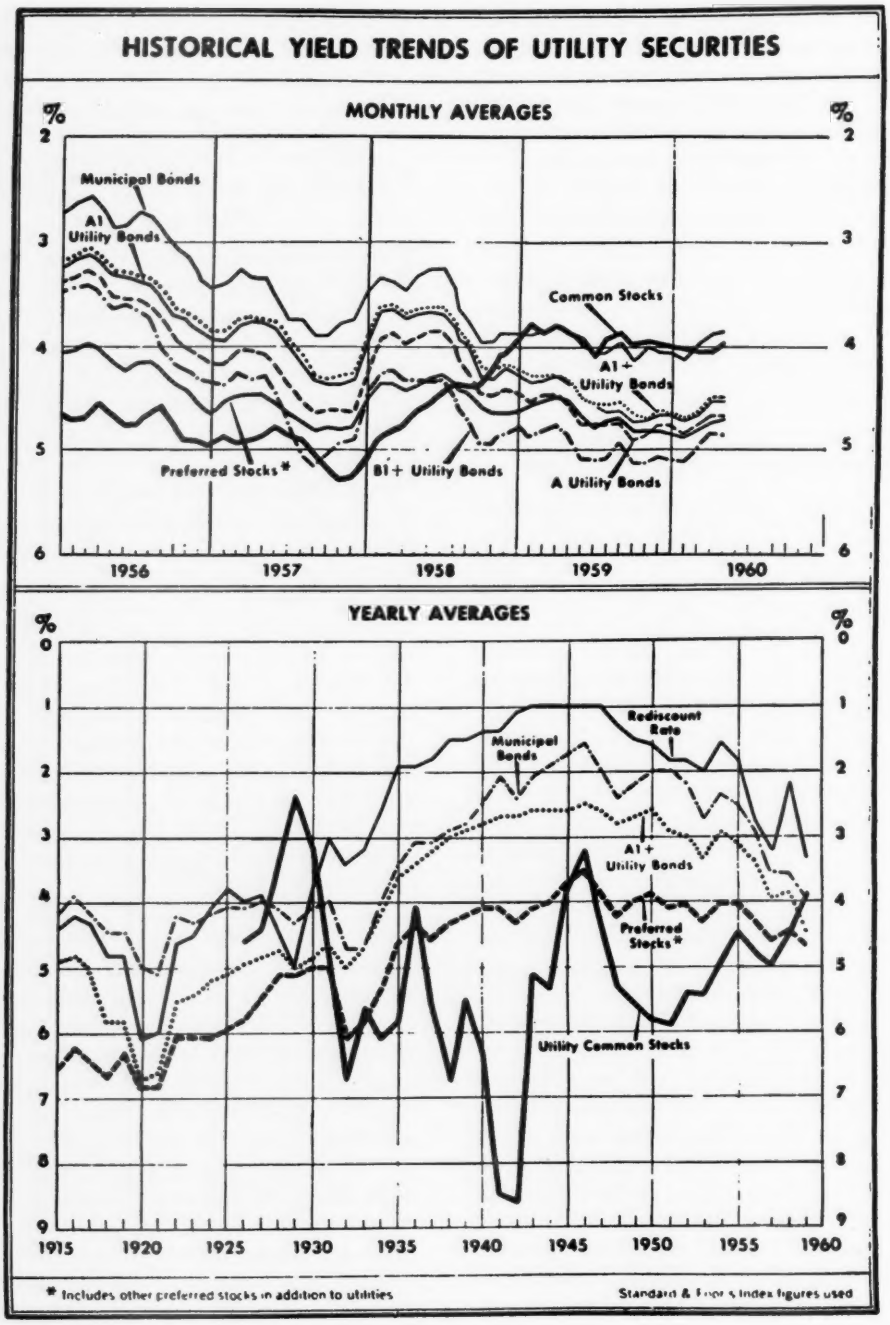
> Virtually all gas industry executives now realize the need to provide gas producers with sales revenues high enough to encourage as well as permit accelerated gas exploration. We know that future demand for gas will rise rapidly, and ways of insuring adequate exploration and location of new gas supplies must be found. We are equally aware, however, of the need to keep well-head prices at levels which will enable distribution companies to continue competing with other energy industries.
>
> Somewhere between these somewhat conflicting viewpoints—providing more money to the producers and maintaining our competitive position in the market place—a fine line, fair to all, must be drawn. Informal discussions have been going on for some time between representatives of gas producers, pipeliners, and distributors—men acting as *individuals* rather than as *official delegates* from trade associations—to develop better understanding of each other's problems and requirements. We are most hopeful that these cordial and valuable discussions will culminate in recommendations and procedures that will permit all branches of the gas industry to coexist harmoniously and, of course, profitably.

Atomic Power Program Rejuvenated, Bigger Plants Planned

LAST February the AEC announced a ten-year civilian reactor development program which aimed at producing competitive atomic power by 1968—at least in high-cost fuel areas. The program would include both pressurized water and boiling-water reactors. It was estimated that the cost of competitive power which nuclear reactors would have to meet was seven mills per kilowatt-hour—the cost of power from a conventional 300,000-kilowatt power station using fuel costing 35 cents per million Btu, at an 80 per cent load factor. The plan is said to have met with a very favorable reception by the Joint Congressional Committee, which in the past had frequently disagreed with the AEC. Democratic members of the committee also wanted to use the big Hanford reactor (designed to make plutonium) to produce some 636,000 kilowatts of power, but the AEC is holding back on this proposal.

The AEC plan produced good results, aided no doubt by the keen competition between GE and Westinghouse. Pacific Gas and Electric, which already is building one GE boiling-water reactor plant of about 50,000-kilowatt capacity, has been reported considering construction of a new 300,000-kilowatt plant, but possibly the company is awaiting the results of initial operations at the Dresden, Illinois, plant, the largest boiling-water unit thus far constructed.

HOWEVER, Southern California Edison has decided to use Westinghouse


HISTORICAL YIELD TRENDS OF UTILITY SECURITIES
MONTHLY AVERAGES
%
Municipal Bonds
Aa Utility Bonds
Common Stocks
Aa+ Utility Bonds
Preferred Stocks*
Baa+ Utility Bonds
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1956
1957
1958
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1960
YEARLY AVERAGES
Rediscount Rate
Municipal Bonds
Aa+ Utility Bonds
Preferred Stocks*
Utility Common Stocks
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960
* Includes other preferred stocks in addition to utilities
Standard & Poor's index figures used

Electric's pressurized water reactor, and construction may get under way by next year, with completion in 1965. The company has announced that it expects the plant to be "economically competitive over its lifetime" with conventional plants. (So far as current estimates are available, such life may be estimated at around thirty years.) The initial cost of production under optimum conditions would approximate 7.3 mills per kilowatt-hour, it is estimated. Edison's conventional plants are producing at a cost of about seven mills, according to *Business Week*.

AEC Chairman John A. McCone has held that the capital cost of about $200 per kilowatt offered by both GE and Westinghouse would insure "satisfactory resulting power costs." The AEC will, as usual, make some contribution for R&D and fuel—apparently about $7.5 million in each case. Mr. McCone hailed the Southern California Edison project as a breakthrough which should lead to similar decisions by other utilities in areas of the U. S. "where conventional fuel costs are creeping up due to scarcity and inflation."

THE 180,000-kilowatt Dresden station, 50 miles southwest of Chicago, which has been constructed by GE for a group of utilities headed by Commonwealth Edison, went critical October 15, 1959, and is currently undergoing commercial tests. A recent report from GE stated that the reactor had already produced nearly 25 million kilowatt-hours, maximum power being 90,000 kilowatts. To date the system has proved very stable, and power distribution has exceeded the best calculated estimates. All indications during the low-power phase of testing, support the conclusion that the plant will operate properly and safely at higher power, officials of Commonwealth and GE announced, recently. During the earlier stages of the Dresden project it was reported that the cost of power at high-load factor would be competitive, but the present status of estimated power cost has not been clarified.

Earlier this year Consumers Power Company of Michigan announced plans to build a boiling-water reactor of 50-75,000-kilowatt capacity in the northern part of its service area near Charlevoix, where additional capacity would be needed by 1965. It was reported that "we have good reason to expect that after the completion of the research and development work, the plant, over its operating life, will be capable of producing energy on a cost basis in the general range of conventional facilities but on the high side."

ESTIMATED cost of the plant is about $30 million, including over $5 million for research, fuel, and incidental costs. The cost of a conventional plant of 75,000 kilowatts is estimated at about $14.6 million. One of the goals of the project is to increase the 50,000-kilowatt initial capacity to 75,000 kilowatts by the development of high-power density—the kilowatt output per cubic foot of core dimension—which would reduce both construction and operating costs.

AEC Chairman McCone announced May 5th that the commission had received two proposals from publicly owned utility organizations for the operation of a prototype 50,000-kilowatt boiling-water nuclear plant of advanced design, and four proposals from reactor manufacturers to furnish the reactor. The proposals were submitted in response to invitations issued last December under the commission's Power Demonstration Reactor Program. They were received from the city of Los Angeles Department of Water and Power, jointly with the city of Pasadena, and

from the Western Farmers Electric Cooperative of Anadarko, Oklahoma.

Mystery of the Moss Committee Chart Solved?

WE have received the following letter from Vice President C. S. Reed of Duke Power Company, which will interest our readers:

> I think you will find that the queer chart of the Moss Committee shown on page 479 of your issue of March 31st was brought about by a transfer from semilogarithmic paper to plain paper. If you will start with a U.S.S.R. production of 51 million kilowatts in 1958 and increase that on an annual basis of about 11½ per cent, you will find that it will equal about 112 million in 1965, which corresponds to the chart, and 330 million in 1975, also on the chart. It is just one more example of the foolish assumption that growth occurs in per cents rather than in kilowatts. Russia having very low production naturally has high per cents.

The solution is interesting, but how do we arrive at the annual growth factor of 11½ per cent? Apparently this was the annual compounded rate of growth during 1950-58; in earlier periods the rate was smaller.

FINANCIAL DATA ON GAS UTILITY STOCKS

Annual Rev. (Mill.)			5/3/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Pipeline and Integrated Systems									
$ 6	O	Ala. Tenn. Nat. Gas	26	$1.20(k)	4.6%	$1.52De	11%	8%	17.1	79%	43%
227	S	American Nat. Gas	62	2.60(L)	4.2	4.57Ma	14	7	13.6	57	40
111	A	Arkansas Louisiana Gas .	37	1.00	2.7	1.68De	38	50	22.0	60	40
62	O	Colo. Interstate Gas	45	1.25(R)	2.8	2.40De	5	11	18.8	52	26
465	S	Columbia Gas System ..	19	1.00	5.3	1.46Ma	6	6	13.0	69	45
21	O	Commonwealth N. G. ...	21	1.00	4.8	1.64De	1	6	12.8	61	52
12	S	Consol. Gas Util.	27	.90(b)	3.3	1.51Ja	8	15	17.9	60	59
324	S	Consol. Nat. Gas	45	2.20	4.9	3.09De	D2	3	14.6	71	58
452	S	El Paso Nat. Gas	32	1.30	4.1	1.66De	3	11	19.3	78	17
55	S	Equitable Gas	36	1.85	5.1	2.41Ma	D6	11	14.9	77	46
36	O	Houston N. G.	33	.80	2.4	1.52Oc	3	9	21.7	53	20
24	O	Kansas Nebr. Nat. Gas ..	46	2.08	4.5	3.51De	20	6	13.1	59	36
125	S	Lone Star Gas	37	1.80	4.9	2.47Ma	4	6	15.0	73	43
88	S	Miss. River Fuel	31	1.60	5.2	2.19De	12	5	14.2	73	52
31	S	Montana Dakota Util. ..	29	1.20	4.1	1.92Ma	9	5	15.1	63	30
29	O	Mountain Fuel Supply ..	25	1.20	4.8	1.77De	13	4	14.1	68	53
94	S	Natl. Fuel Gas	23	1.15	5.0	1.67Ma	D8	6	13.8	69	52
159	S	Northern Nat. Gas	28	1.40	5.0	1.92De	19	7	14.6	73	32
43	S	Oklahoma Nat. Gas	26	1.24	4.8	2.02F	5	5	12.9	61	34
137	S	Panhandle East. P. L. ..	46	1.80	3.9	3.30De	18	9	14.3	55	38
16	O	Pennsylvania Gas	25	1.20	4.8	2.61De	23	4	9.6	46	59
226	S	Peoples G. L. & Coke ..	63	2.30	3.7	4.04De	33	8	15.6	57	43
33	O	Pioneer Natural Gas ..	23	.88	3.8	1.40De	27	9	16.4	63	41
122	S	Southern Nat. Gas	34	2.00	5.9	1.59De††	D18	—	21.4	126	36
46	O	Southern Union Gas	22	1.12	5.1	1.50De	7	3	14.7	75	29
463	S	Tenn. Gas Trans.	36	1.65	4.6	1.93De	4	17	18.7	86	26
296	O	Texas East. Trans.	28	1.40	5.0	2.28Ma	11	4	12.3	61	21
116	S	Texas Gas Trans.	32	1.40	4.4	2.33De	13	9	13.7	60	24
147	O	Transcont. Gas P. L.	20	1.20(b)	6.0	1.25Ma	3	6	16.0	96	20
354	S	United Gas Corp.	30	1.50	5.0	2.20Ma	D8	2	13.6	68	41
		Averages			4.5%		10%	8%	15.8	68%	

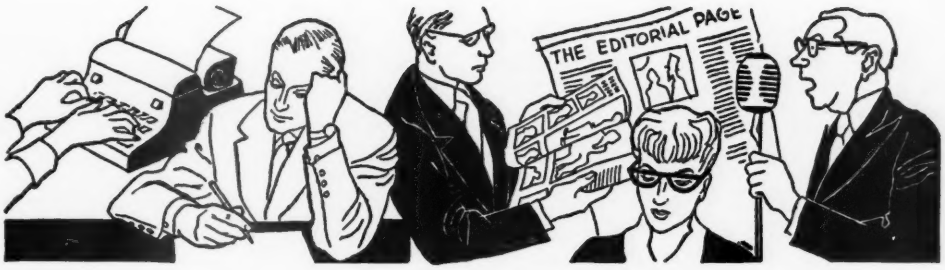
Annual Rev. (Mill.)		(Continued)	5/3/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Retail Distributors									
34	S	Alabama Gas	28	$1.60	5.7%	$1.85De	D15%	1%	15.1	88%	35%
57	O	Atlanta Gas Light	35	1.80	5.1	2.62F	D10	6	13.4	69	39
3	O	Berkshire Gas	17	1.00	5.9	1.22F	D14	6	13.9	82	41
7	A	Bridgeport Gas	30	1.68	5.6	2.16De	D2	5	13.9	78	48
6	O	Brockton-Taunton Gas	19	1.00	5.3	1.30De†	10	18	14.6	77	46
89	S	Brooklyn Union Gas	27	1.20	4.4	1.76Ma	D2	6	15.3	68	42
45	O	Central Elec. & Gas	24	1.20	5.0	1.83De	30	9	13.1	66	18
14	O	Cent. Indiana Gas	14	.80	5.7	.86De	D4	—	16.3	93	58
6	O	Chattanooga Gas	4	—	—	.26N	D40	—	15.4	—	44
16	O	Elizabethtown Gas	33	1.60	4.8	2.92Ja	D3	11	11.3	55	79
77	O	Gas Service	34	1.72	5.1	2.16Ma	D23	8	15.7	80	35
9	O	Hartford Gas	43	2.00	4.7	2.90Ma	8	—	14.9	69	51
3	O	Haverhill Gas	28	1.60	5.7	1.97F	D7	12	14.2	81	53
21	O	Indiana Gas & Water	21	1.00(b)	4.8	1.50Ja	D5	5	14.0	67	46
58	S	Laclede Gas	22	1.05	4.8	1.25De	3	8	17.6	84	38
7	O	Mich. Gas Utils.	26	1.20	4.6	1.62De	35	5	16.0	74	37
53	O	Minneapolis Gas	30	1.55	5.2	2.16De	28	—	13.9	72	43
18	O	Miss. Valley Gas	22	1.20	5.5	1.77De	D17	—	12.4	68	37
6	O	Mobile Gas Service	24	1.10	4.6	1.41De	D8	4	17.0	78	38
8	O	New Haven Gas	38	2.00	5.3	3.24De	5	5	11.7	62	68
16	O	New Jersey Nat. Gas	22	.90	4.1	1.38Ma	NC	12	15.9	65	36
105	O	No. Illinois Gas	33	1.20	3.6	1.94Ma	20	14	17.0	62	50
10	O	North Penn Gas	11	.60	5.5	.91Je	13	10	12.1	66	60
20	O	Northwest Nat. Gas	20	.84	4.2	*1.50Ma	34	11	*13.3	56	36
307	S	Pacific Lighting	47	2.40	5.1	3.03Ma	2	2	15.5	79	41
12	O	Piedmont Nat. Gas	14	.50	3.6	.76De	D17	—	18.4	66	27
2	O	Portland Gas Lt.	17	.75(m)	4.4	1.93De	D12	13	8.8	39	27
11	A	Providence Gas	10	.56	5.6	.65De	8	5	15.4	86	48
4	A	Rio Grande Valley Gas	4	.16	4.0	.32De	D6	7	12.5	50	46
5	O	So. Atlantic Gas	14	.80	5.7	.87De	D28	—	16.1	92	30
16	S	So. Jersey Gas	24	1.00	4.2	1.35Ma	8	13	17.7	74	51
36	S	United Gas Improvement	48	2.40	5.0	3.39Ma	1	10	14.2	71	49
63	S	Wash. Gas Light	46	2.24	4.9	3.90Ma	D8	3	11.8	57	40
18	O	Wash. Nat. Gas	21	(g)	—	1.39De	111	20	15.1	—	38
12	O	Western Ky. Gas	17	.70	4.1	1.59De	18	3	10.7	42	41
		Averages			4.9%		4%	6%	14.6	70%	

FINANCIAL DATA ON TELEPHONE, WATER, AND TRANSIT STOCKS

Annual Rev. (Mill.)			5/3/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
		Communications									
$6,771	S	American T. & T. (Cons.)	88	$3.30	3.8%	*$5.27F	11%	4%	*16.7	63%	64%
377	A	Bell Tel. of Canada	46	2.20	4.8	2.39De	12	—	19.2	92	62
51	O	Cin. & Sub. Bell Tel.	90	4.50	5.0	5.57De	8	2	16.0	81	77
288	A	Mountain Sts. T. & T.	174	6.60	3.8	10.14F	19	7	17.2	65	59
380	A	New Eng. T. & T.	35	1.72	4.9	2.24Ma	9	7	15.6	77	59
937	S	Pacific T. & T.	27	1.14	4.3	1.51F	27	1	17.9	75	61
128	O	So. New Eng. Tel.	44	2.20	5.0	2.51De	D3	5	17.5	88	65
		Averages			4.5%		12%	4%	17.1	77%	
		Independents									
7	O	Anglo-Canadian Tel.	43	$1.20	2.8%	$3.45De	17%	21%	12.5	35%	44%
45	O	British Col. Tel.	45	2.20	4.9	3.04De	77	—	14.8	72	28
4	O	Calif. Inter. Tel.	13	.70	5.4	.92Se	10	NC	14.1	76	24
25	O	Calif. Water & Tel.	27	1.28	4.7	1.96De	9	5	13.8	65	36
20	O	Central Tel.	21	.88(b)	4.2	1.72Se	14	5	12.2	51	33

Annual Rev. (Mill.)		(Continued)	5/3/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earns. Ratio	Div. Payout	Approx. Common Stock Equity
5	O	Commonwealth Tel.	20	.90	4.5	1.47De	9	8	13.6	61	35
5	O	Florida Tel.	29	1.00	3.8	1.32De	32	4	22.0	76	40
1,080	S	General Tel. & Elec.	28	.76	2.7	1.14Ma	7	10	24.6	67	43
22	O	Hawaiian Telephone	21	1.00	4.7	*1.26Ma	D5	4	16.9	79	45
8	O	Inter-Mountain Tel.	16	.80	5.0	.77De	D15	—	20.8	104	53
26	S	Rochester Tel.	24	1.00	4.2	1.54De	3	5	15.6	65	36
12	O	Southwestern St. Tel. ..	24	1.20	5.0	1.44De	D8	3	16.7	83	42
13	O	Telephone Serv. of Ohio	170	2.80(q)	1.6	8.78De	22	8	19.3	32	32
42	O	United Utilities	41	1.45	3.5	1.95De	19	14	21.0	74	39
19	O	West Coast Tel.	25	1.20	4.8	1.72De	42	5	14.5	70	37
276	S	Western Union Tel.	43	1.40	3.3	2.59De	31	15	16.0	54	87
		Averages			4.1%		17%	7%	16.8	67%	
		Water Companies									
		Holding Companies									
48	S	American Water Works.	20	$ .80	4.0%	$1.46De	44%	7%	13.7	55%	19%
		Operating Companies									
5	O	Bridgeport Hydraulic ...	37	$1.70(f)	4.6%	$1.86De	6%	5%	19.9	91%	53%
17	O	Calif. Water Service	23	1.20(j)	5.2	1.69Ja	6	6	13.6	71	37
5	O	Elizabethtown Water ...	55	2.40	4.4	4.41De	17	—	12.5	55	60
12	S	Hackensack Water	49	2.40	4.9	4.36De	32	6	11.2	55	35
10	O	Indianapolis Water	26	1.20(S)	4.6	1.68De	38	5	15.5	71	34
6	O	Jamaica Water	41	2.20	5.4	3.26De	D2	17	12.6	67	28
5	O	New Haven Water	66	3.40	5.2	2.91De	D12	—	22.7	117	55
2	O	Ohio Water Service	28	1.50(b)	5.4	1.74De	14	—	16.1	86	33
9	O	Phila. & Sub. Water	50	1.60(e)	3.2	2.75Je	D7	—	18.2	58	27
3	O	Plainfield Un. Water	19	1.10	5.8	2.31De	44	12	8.2	43	66
5	O	San Jose Water	34	1.30(f)	3.8	2.22Ma	9	10	15.3	59	41
11	O	Scranton-Springbrook ..	23	1.20	5.2	1.78Ma	6	6	12.9	67	29
7	O	South. Calif. Water	19	1.00	5.3	1.34De	11	8	14.2	75	36
4	O	W. Va. Water Service ..	21	.80(d)	3.8	1.75De	34	5	12.0	46	19
		Averages			4.8%		13%	6%	14.6	69%	
		Transit Companies									
21	O	Baltimore Transit	8	$1.00	12.5%	$1.02De	72%	11%	7.8	99%	45%
12	O	Cincinnati Transit	8	.30	3.8	.91De	193	—	8.8	33	56
66	S	Fifth Ave. Lines	16	.50	3.1	.23De	—	—	—	—	65
322	S	Greyhound Corp.	22	1.00(p)	4.5	1.81De	D5	7	12.2	55	62
26	S	Nat. City Lines	28	2.00	7.1	2.22De	33	—	12.6	90	92
13	O	Niagara Frontier Trans.	10	.60	6.0	.10De†	D87	—	—	—	67
20	A	Pittsburgh Rys.	12	.25	2.0	—	—	—	—	—	90
6	O	Rochester Transit	6	.40	6.7	1.08De	26	—	5.6	37	100
21	O	St. Louis P. S.	11	1.00	9.1	.77De	13	—	13.0	130	93
13	S	Twin City R. T.	7	—	—	.59De	146	—	11.9	—	65
20	O	United Transit	7	.70	10.0	.89De	18	2	7.9	79	54
		Averages			6.5%		52%	2%	10.0	75%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. NC—Not comparable. NA—Not available. D—Decrease. *On average shares. **Includes tax savings from accelerated depreciation. (a)—Adjusted to eliminate 13 cents per share of nonrecurring tax savings. (b)—Also 20 per cent stock dividend January 15, 1960. (d)—Also 1 per cent stock dividend quarterly. (e)—Also 3 per cent stock dividend January 7, 1960. (g)—Five per cent stock dividend April 10, 1959. (j)—Also 5 per cent stock dividend March 19, 1959. (k)—Also 20 per cent stock dividend March 9, 1959. (L)—Also 10 per cent stock dividend June 10, 1959. (m)—Also 10 per cent stock dividend January 15, 1960. (n)—Excludes profit realized on sale of Los Angeles Transit $3.81 per share. (p)—Also 5 per cent stock dividend June 30, 1959. (q)—Also 3 per cent stock dividend December 31, 1959. (R)—Also 40 per cent stock dividend June 13, 1960. (S)—Also 10 per cent stock dividend March 31, 1960. †December, 1958. ††Excludes profit on sale of securities of 26 cents per share.



What Others Think

The Natural Gas Industry—Past and Present

On April 21st Paul Kayser, then president of El Paso Natural Gas Company, spoke to the Federal Power Bar Association in Washington, D. C., regarding the history of the natural gas industry and its present status. Mr. Kayser, on May 2nd was elected to the newly created post of chairman of the board and chief executive officer of El Paso Natural Gas Company.

In 1928 he founded the El Paso Natural Gas Company and he has served continuously as president since that time.

Mr. Kayser stated that the practical beginnings of long-distance, high-pressure, large diameter pipeline transmission commenced in the early 1930's when lines were built from the Panhandle fields of Texas and the Hugoton field of Oklahoma and Kansas to Omaha, Chicago, and Detroit. The advances in pipe construction permitted the use of lines that operated at a thousand pounds per square inch—36 inches in diameter, as compared with working pressures of about 400 pounds per square inch with a 24-inch diameter in the 1920's. These developments, Mr. Kayser states, made it possible for natural gas to reach all the markets of the nation.

At first natural gas substituted for manufactured gas. The progress made by the industry was at first slow; however, once it caught on expansion took place at a fast rate. Statistics compiled by the American Gas Association began in 1932.

Mr. Kayser noted the following facts as proof of the rapid and far-reaching development of the industry:

> . . . In 1932 the total natural gas sales amounted to 788 billion cubic feet. In 1959 the total sales were 8,169 billion cubic feet, over a tenfold increase. In 1932 there were 157,000 miles of natural gas mains, including transmission, gathering, and distribution; at the end of 1959 there were 566,000 miles of natural gas mains in service. Since 1945 the miles of natural gas transmission lines *alone* have increased from 77,280 to 170,700. The gross investment in facilities by all natural gas pipelines in 1937 was only $2,235 million, while by 1958 the gross investment had arisen to the staggering sum of $17,095 million. . . .

In further illustration of the growth and use of natural gas, Mr. Kayser said that in 1932 only 16.6 per cent of the nation's households were being served by natural gas. In contrast, 52 per cent of the nation's households now are served by this fuel.

The Natural Gas Act in 1938 gave the Federal Power Commission jurisdiction over the industry; however, the beginning of World War II delayed the immediate expansion of the natural gas pipeline business. During the postwar period the number of customers increased from 8,914,000 in 1945 to 28,023,000 in 1958. Mr. Kayser stated that credit must be given to the Federal Power Commission for the granting of certificates for the construction of new facilities and the regulation of rates charged for service.

In Mr. Kayser's view there are three principal problems facing the industry at this time: (1) The chaos brought about by the Supreme Court placing producers under utility regulation (the Phillips decision). (2) The fixing of a new and proper rate of return in view of the increase in the cost of money. (3) The necessity for the industry to maintain itself in a competitive position in relation to other fuels.

It is Mr. Kayser's contention that a reading of the Natural Gas Act would convince any lawyer that Congress did not intend the act to regulate the price at which the producer should sell his gas at the well mouth. The best indication of the intent of Congress, he believes, can be found in the fact that the act contains not a single word to guide the commission on how to regulate such prices.

FOLLOWING the U. S. Supreme Court decision, the commission has consistently reported to Congress that it is not practicable to regulate producers on the utility rate base formula and it has asked that it be authorized to regulate such prices on an area basis. Approximately 5,935 producers' cases and only 154 pipeline cases are now pending before the FPC.

In view of the Supreme Court decision, Mr. Kayser feels that an amendment to the Natural Gas Act should be passed which would grant the commission a formula under which to establish area prices.

He stated:

> . . . Necessarily, such action would authorize the commission to fix these prices at a level that has a relationship to the present prices in effect and to their historical development. Likewise, these prices must be, in the opinion of the commission, sufficient to stimulate the discovery and development of reserves necessary to satisfy the market demand for gas. It is apparent upon any intelligent study of producer prices, that in any free economy the only way you can satisfy the market demand for gas is to permit producer prices to seek and maintain a level that will stimulate exploration and sustain development so as to make available to the market the gas necessary to supply the demands of the service.

Mr. Kayser pointed out that historically there has been much variation in prices in different areas and Congress should take these facts into consideration and grant broad powers to the commission so that some order could be produced in the present state of chaos.

REGARDING rate of return Mr. Kayser stated that the FPC set a 6 per cent figure for the natural gas industry more than twenty years ago. Interest rates at that time were half of what they are today. The industry must, therefore, be granted an increased rate of return which is related to the present cost of money. It is Mr. Kayser's belief that whenever the cost of debt money goes up, the current rate of return becomes inadequate to that extent.

In fixing a rate of return the commission is charged with insuring efficient service for the maximum time rather than protection of the short-term interest of the consumer to the detriment of long-term service. Mr. Kayser said that it would be shortsighted regulatory practice to put into effect rates which might give short-term gains to the consumer but which would work to the detriment and impairment of the consumer's long-term service.

In consideration of the competition of other fuels, Mr. Kayser noted that the industry is now reaching maturity. A great part of the market has now been taken over and the price of gas in the field and the distance over which it has to be transported have increased so that it must now maintain its position in relation to other fuel costs. He said, "In other words, it [the gas industry] is bumping its head against the ceiling of the price that it can get for its product." Meeting of this competition will require the industry to get the most out of every dollar that is spent capitalwise, and the holding down of its expense of operation to a point consistent with efficiency. He cautioned against any complacency in the industry's sales policy

to the consuming public. On the plus side of the scale, he stated, is the efficiency and diversity of uses to which natural gas may be put and he expressed his confidence that the gas industry could meet any competition.

In conclusion, he spoke of the natural gas industry as an "efficient transportation system" which transports gas from thousands of feet below the earth's surface to points 200 to 2,000 miles' distant without intermediate handling. The efficiency of this transportation system has enabled natural gas to supply nearly one-third of the total energy resources of this nation—a nation which can boast of the highest living standard that the world has ever seen.

The natural gas industry delivers into the economy more than seven times as much energy as all the dams in the nation, including the TVA system, Grand Coulee, and Niagara. Mr. Kayser observed that this system had principally been built up in the past twelve years and he expressed his confidence that the industry will continue to expand and render great service to our economy.

—C.M.B.

Future of REA Electric Co-ops

David A. Hamil, REA Administrator, sized up the future of REA co-operatives in his address to the eighteenth annual meeting of the National Rural Electric Co-operative Association in St. Louis last February. He predicted that the output of electric power would be at least four times higher in 1975 than it is now. Speaking of what the future might hold for REA co-ops, he said he estimated they would be selling no less than 175 billion kilowatt-hours of electricity by 1985—which was seven times what they sold in 1959.

Hamil called attention to the fact that the co-ops added 139,000 new customers in 1959 and that five out of six of them were nonfarm customers. Said the REA head:

> The increase in power sales will mean you must learn to live with a permanent problem of power supply. You will have to take an objective look at all possibilities for getting wholesale power to determine which method is the most advantageous to your members. You may find it to your mutual benefit to join with other borrowers on a state or regional basis and to negotiate with power suppliers as a group.
>
> When careful negotiation fails to result in reasonable rates for consumers, the generation and transmission authority of the Rural Electrification Act is there to take care of the need. . . . in the last seven years, REA has approved loans to provide for more generating capacity than was provided for in loans approved during the preceding seventeen and a half years of the program.

Referring to criticism directed at electric co-ops, Hamil said there are folks who imply that REA co-ops borrow federal funds at 2 per cent and reinvest them at a higher rate of interest. He said this was not true because REA advances are earmarked for special purposes, and they cannot be used for investments. However, he said, "as long as you borrow money from the government, you will be criticized for investing too much money at a higher rate of interest than you pay REA. Those of you with large investments should make sure you can justify

them in terms of your business operations. You might consider putting all the funds you can spare into your own plant or using them to make advance payments on your government loans."

Administrator Hamil declared that he would like to see a plan devised whereby REA co-ops could send REA funds and withdraw them when needed for any purpose for which a new loan could be made. He said the co-ops would receive interest on this money, equal to the interest they were paying under the Rural Electrification Act.

But Hamil pointed out that such an arrangement would require legislation by Congress. He said if REA co-ops banked their funds with REA it would put a stop to criticism of their investments once and for all. Hamil continued:

> In back of the criticism [of interest rate] is the disparity between the 2 per cent interest you pay on your government loans and the high interest which the government must pay on its own borrowed money. This gap between the government's interest and your interest continues to be the one painful thorn in any discussion of the REA programs. I am convinced that continued public acceptance of rural electrification and rural telephony will depend on the position you take on the interest rate question.

HAMIL pointed out that there was no perpetual "covenant" between Congress and REA borrowers in the Pace Act interest rate of 2 per cent. He quoted Mr. Pace's answer to a question as to what would happen in the event the cost of obtaining funds on the part of the RFC or the Treasury should materially increase. It was, "The subcommittee's thought on that was that they are so handy to Congress that they could ask us to make such adjustments in the rate as any substantial change in the cost might justify."

Hamil said it was clear to him that the President was carrying out the intent of Congress when he asked for an adjustment in the REA interest rate to reflect the substantial increase in the government's cost of money.

The REA head called attention to the fact that the operating reports of REA borrowers indicated they were financially sound. In 1958, he said, only 45 had deficits totaling $864,000—less than half the amount they had in 1955. And net worth climbed from 9.6 per cent at the start of 1955 to 18.8 per cent at the start of 1960—almost double in five years.

In view of this evidence of financial stability and strength, Hamil said, the President's recommendation seems quite fair. His proposal does not set the interest rate; it merely sets a ceiling under which the Secretary of the Treasury must operate. Hamil stated:

> The rate could not exceed the average rate of interest payable by the Treasury on recently issued long-term marketable obligations, plus one-fifth of one per cent to cover administrative expenses and possible losses. . . . That would be fair to you and to the government.

WERE this proposal to become law today, Hamil pointed out, the interest REA co-ops would pay would be more than 4 per cent. This would affect new loans only. Co-ops would be borrowing money at rates no higher than those paid by the government, which is the best credit risk in the nation. He said he thought this was a most equitable arrangement. "I can't see how anyone can criticize it. Any rate less than proposed could be called a subsidy."

No one likes a higher interest rate, Hamil conceded, but said he was certain

many co-ops could absorb a cost-of-money increase without changing their rate structure in the slightest.

Acceptance by the electric co-ops of higher interest rates would gain them rewards of better public relations and keep their bright record untarnished, the REA Administrator said. In looking ahead, Hamil pointed out, REA co-ops should take advantage also of the President's recommendation to establish a mutually owned financial institution to meet future capital needs. The Secretary of Agriculture, the President has said, will work with REA co-ops and other interested parties in developing such a proposal. The President has also noted that loans would continue to be available from REA to meet special circumstances after the co-ops developed a financial institution of their own.

Hamil predicted a great period of expansion ahead for the electric co-ops in the sixties and urged them to keep their policies flexible and their service on a high plane.

Power Dams and Fishing Conditions

IN an article published last month Don Cummins, outdoor editor of the *Birmingham Post-Herald,* Birmingham, Alabama, chided fishermen for the frequent remark that power dams spoil fishing conditions.

Mr. Cummins makes an offhand estimate that better than 90 per cent of criticism leveled at power companies for use of water in recreational areas is not justified. He notes that the chief complaint against power companies is that they spoil fishing by lowering reservoirs unnecessarily.

In defense of the utilities he states:

> In fairness to the utility folks, it must be said they are in business to produce electricity at the most economical rate, without which there would be a lot more gripes than those from fishermen.
>
> And, secondly, the power company IS interested in the recreational uses of the water flowing through its hydroelectric plants and the reservoirs these dams control.

The reference here is evidently to the Alabama Power Company.

Mr. Cummins points out that the utility in the Birmingham area controls the flow of water during the spawning season so that there is a minimum fluctuation in water levels so as not to endanger shallow spawning beds. Following the spawning season the water level is often dropped in order to expose stream banks to the hot sun and destroy mosquito larva. These various advantages are provided to an area while the utility strives to produce electric power at an economical price.

IT is suggested by Mr. Cummins that the average sportsman could do away with a good many of his gripes against power dams if he would stop being a slave to habit.

Mr. Cummins states that "if you've been fishing the river bank and the water drops some, all that is necessary is to fish a little farther from the bank than you have been doing."

The March of Events

Antitrust Laws Apply to Co-ops

A RECENT ruling by the United States Supreme Court stated emphatically that when a merger between a co-operative and another company results in lessened competition, or creates a monopoly, antitrust laws should be invoked.

The decision was unanimous. Justice Hugo Black said the court does not believe Congress meant to exempt co-ops from antimonopoly prosecution if they are engaged in practices that stifle competition.

The case involved the Maryland & Virginia Milk Producers Association which in 1954 acquired Embassy Dairy. At the time the co-op's 2,000 members were supplying 90 per cent of the milk for the Washington, D. C., area. Embassy Dairy was not buying milk from the co-op. But even though Embassy was distributing only 5 per cent of the area's milk, the Justice Department said this merger was illegal, and the high court concurred. The co-op has been ordered to divest itself of Embassy as it existed in 1954.

Test Canned Electricity

A SMALL device powerful enough to run a front-line radar station and compact enough to be carried in a soldier's back pack, will be tried out in mock combat tests this month. The device contains 30 fuel cells and produces 300 watts of 24-volt direct current for fourteen hours. It is rechargeable by replacing a fuel unit about the size of a beer can. Weighing about 30 pounds, the power unit works on the principle of converting chemical energy into electricity. It has no moving parts, is noiseless and rugged. It makes electricity by combining hydrogen from the beer can with oxygen in the air.

Scientists said such devices might eventually be used to provide power for satellites and space vehicles, antisubmarine weapons, detection devices, automobiles, planes, and even tiny transistor radios.

The power pack is being developed for the electronics division of the Navy's Bureau of Ships and the radar division of the Army Signal Corps.

Arizona

Federal Power to Go to Utility

THE federal government, in settlement of a five-year-old legal fight, has agreed to continue selling power to Citizens Utilities Company, a concern supplying electricity in Arizona. A compromise

was approved by the U. S. court of claims, under which the Interior Department agreed to sell federally generated power to Citizens Utilities and the company agreed to drop a damage suit and claims to service from the government's Hoover dam.

Citizens Utilities and California-Pacific Utilities Company, which agreed earlier to settle, went to court after the department refused in 1954 to renew power supply contracts. The government and the companies could not agree on the company's right to renewal, and so the government let the contracts expire.

Michigan

Atomic Power Plants OK'd

A BIG demonstration nuclear power plant at Big Rock Point, Charlevoix county, Michigan, has been approved for construction by the Atomic Energy Commission. It will have an initial generating capacity of 50,000 kilowatts and it is hoped that further research and development will boost the output to 75,000 kilowatts. The reactor is to be of the high-power density, boiling-water type, fueled by uranium oxide.

Participating in the project are Consumers Power Company, Jackson, Michigan, and General Electric Company, San Jose, California. The plant is to be available for four and a half years for research on the feasibility of increasing the power density (power a unit volume of fuel), to determine the effects of such operation on fuel life, and other related questions.

The AEC will support GE research and development work before and after construction up to about $3.7 million, subject to an increase of 10 per cent if costs rise. Consumers Power research and development will be supported up to $500,000, and the AEC will waive fuel-use charges of about $1,650,000 for the first five years.

Reason Given for Gas Boost Request

THE state public service commission has been told by Michigan Consolidated Gas Company that the principal reasons behind its request for higher rates are higher wholesale gas prices and increased costs of doing business.

The rate increase sought by Michigan should average about 4½ cents a day for the company's 860,000 customers and would total $14,370,000 annually. Customers' bills would go up from 25 cents to $1.35, depending on the amount of gas consumed.

Executive Vice President Hugh C. Daly of Michigan said that $7,173,000 of the increase is involved in higher wholesale gas costs; $2 million is needed for additional storage fields; maintenance requires $820,000; depreciation and amortization, $457,000; and general tax increase $409,000.

In addition, the company needs $2.5 million more in revenue to improve its earnings picture. A financial consultant testified at a hearing that Michigan Consolidated needed a 7.5 per cent rate of return.

New Jersey

Commuters' Income Tax

A NEW income tax initiated by Governor Meyner of New Jersey which is called the "commuters' benefit tax" may be enacted into law. The legislation is patterned after New York state's income tax law. It would apply only to persons working in one state and residing in another. It would affect commuters or those who live in one state and have investments on

income-producing property in another state.

There are 150,000 New Jersey residents who would claim credits on their New York income tax and pay their taxes to New Jersey. The 70,000 New York workers in New Jersey would follow this procedure in reverse.

Oregon

Snake River Dam Plans OK'd

THE Oregon Hydroelectric Commission has granted a license to Pacific Northwest Power Company for construction of the $255 million High Mountain Sheep dam on the Snake river between Oregon and Idaho. This is the final state approval needed for starting construction of the 670-foot high dam.

However, plans for building the 1,520,000-kilowatt hydroelectric project hinge now on the approval of the Federal Power Commission. Hearings started in May on the High Mountain Sheep project, as well as a conflicting application by a Washington state public power group for a dam at Nez Perce, two and a half miles downstream from the High Mountain site.

The Washington Public Power Supply System, a group of 13 public utility districts, contends its dam, which would cost $276 million and generate 1.2 million kilowatts of electricity, has a superior site. It has not made application, though, to Oregon regulatory bodies and Oregon maintains that its permission is needed since it holds joint water rights on the Salmon river with Idaho at the proposed Nez Perce site.

Pennsylvania

Philadelphia Offers to Buy Transit Company

THE city of Philadelphia has offered the Philadelphia Transit Company $75 million for its transit system. Previously the city had offered $70 million which was turned down. It is reported that the PTC might be willing to consider an offer of $80 million. Mayor Dilworth said two acquisition plans are being studied. One involves purchasing PTC assets at a cost no higher than $75 million. The other would be a purchase of the transit company's stock. Buying the stock, though less costly than the first plan, would make the city responsible for all the transit company's debts.

Rhode Island

Sliding Price Scale Asked for Gas

THE Providence Gas Company has asked the state public utilities division of the department of business regulation to permit it to insert a price adjustment clause in its rate structure which would enable the utility to adjust customers' bills as the wholesale rate of natural gas changed without the need for a rate hearing.

Providence said that the price adjustment clause it seeks is the same in principle as fuel adjustment clauses which have long been common in the manufactured gas industry, whereby consumer bills would go up or down with changes in fuel costs. The natural gas supplier to the Providence Gas Company, Algonquin Gas Transmission Company, has a rate increase case pending before the Federal Power Commission. Its rates were put into effect under bond, subject to refund

if the FPC disallows the rate boost.

It is estimated that Providence will pay $479,000 more for its gas under the increased wholesale rates. The typical customer of Providence will pay anywhere from 7 cents to 87 cents more a month, depending on how much gas is normally consumed.

Tennessee

To Join Gas Association

THE Knoxville Utilities Board is contemplating joining a group of east Tennessee municipal gas distributors, which would protect the interests of consumers in rate hike proceedings before the Federal Power Commission.

The organization in question, United Small Customers Association, is being formed by municipal boards which buy gas wholesale from East Tennessee Natural Gas Company. This company obtains its gas supplies at wholesale from Tennessee Gas Transmission Company.

Mark B. Whitaker, general manager of the Knoxville Utilities Board, said that last year Tennessee Gas Transmission acquired 94 per cent of the common stock of East Tennessee Natural Gas Company. Because of this transfer of control, he said, it was imperative for KUB to take a more active part in rate proceedings in order to protect its interests.

Texas

Gas Can Be Taxed Twice

THE supreme court of Texas has ruled that the state has the right to tax natural gas twice. It said it could find no reversible error in decisions that upheld State Comptroller Robert S. Calvert in a suit filed against him by the Francitas Gas Company. The company tried to recover production taxes paid under protest.

Facts in the case show that for years Francitas Gas Company produced gas in Jackson county, ran it through its cycling plant to remove the liquid hydrocarbons, then reinjected the gas into the sand. In 1950 it began removing the residue gas and selling it to the Aluminum Company of America for fuel.

Francitas maintained that Texas had the right to levy the state production tax of 7 per cent of fair market value the first time, but not the second. The supreme court ruled that the company paid the tax only on liquid hydrocarbons extracted in the first production, so it still owed production tax on the residue gas when it was produced and sold.

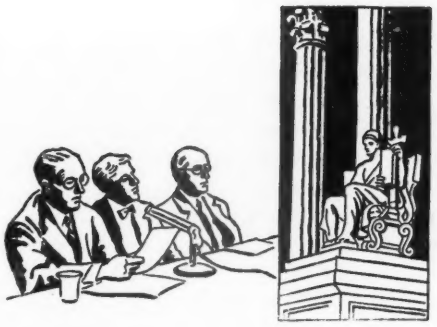
Virginia

Gas Rate Boost Asked

THE Virginia Gas Distribution Corporation has filed a request for a 9 per cent rate increase for its residential and commercial customers. It asked the Virginia State Corporation Commission for $410,000 additional revenue in order to allow the company to earn a 6.8 per cent return on its investment.

In a recent hearing, company witnesses contended the increases are required because of rising labor, materials, and tax costs. They said the company's rate of return dropped to 4.27 per cent in 1959.

However, the commission staff pointed out that the mild winter of 1958-59 probably caused a sharp drop in the company's sale of gas and therefore provided an unrealistic picture of the company's financial situation. Further hearings were scheduled to be held.



Progress of Regulation

Trends and Topics

Special Taxes Imposed by Local Authorities Should Be Shown on Bills

HIDDEN taxes passed on to customers as part of the cost of services and merchandise tend to lull the public into a frame of mind where governmental expenditures are increased without strong opposition. Owners of real estate know the amount of their real estate taxes, and income taxpayers are aware of the amount they pay each year. Many people, however, are not aware of the burden passed on to them by taxes levied all along the line upon corporations from which they buy service and merchandise. Public utility companies must pass along to their customers the taxes imposed upon them, usually without the customers being aware of the tax included in their bills.

In one area, however, customers are made aware of the tax. Regulatory authorities in several states require the utility to show a local tax in the form of a surcharge on customers' bills in order that they may be fully aware of the amount and nature of the tax. This carries further the rule adopted by several commissions that special municipal levies should be borne locally, which subject is discussed in PUBLIC UTILITIES FORTNIGHTLY, October 27, 1955, at page 755.

Customers to Be Advised of Tax

The Florida commission, in response to a petition by Florida Water Service, Inc., held that a municipal franchise tax should not be incorporated in the rate paid by customers but should be shown separately as a surcharge and applied only to those customers whose municipalities enforce the tax. The commission said that the customers, in so far as possible and practicable, should be advised of the cost of water and sewer service to them and of the "amount of the tax they are required to pay" (32 PUR3d 320).

This recent decision by the Florida commission is in harmony with the views expressed by the Colorado commission in two cases relating to Cortez Natural Gas Company, Inc. (14 PUR3d 105; 21 PUR3d 70). The commission considered it contrary to good regulatory practice to permit a city or

town to charge a tax outside municipal limits, where the franchise does not apply. While a franchise tax was said to be a legitimate charge, the commission was reluctant to encourage the practice of high franchise taxes, and, if the utility were merely to become a collection agency for a municipality, the customers living there "should be fully informed in regard to the taxes they are required to pay." The commission required that the franchise tax within the corporate limits be surcharged on each bill sent to customers within the municipality in order that there be no misunderstanding as to the amount or nature of the tax.

The Wyoming commission, in fixing rates for Montana-Dakota Utilities Company, decided that the company should be required to show on all utility bills rendered in Sheridan, as a separate item, the pro rata share of occupation taxes levied against it by that municipality. It was also required to show on its utility bills rendered consumers in other municipalities in the Sheridan division of the company, as a separate item, their pro rata share of any similar excise taxes which might later be imposed upon the company by the municipal officials of their respective localities (15 PUR3d 246).

The Nevada commission, after holding that a local tax should be collected from customers of Bell Telephone Company of Nevada, ruled that the tax should be surcharged on monthly bills (31 PUR3d 392).

Understanding with Municipal Authorities Not Binding

The Utah supreme court, in reviewing a commission order which directed the charging of special municipal taxes against subscriber residents in the area where such impositions were made, complimented Utah Power & Light Company for adhering to an understanding with municipal authorities that it would not show a special municipal tax on bills. The company's frank consistency and adherence to principle were said to be commendable, but "its private understanding hardly could bind the commission." The court upheld the commission's order to bill these local franchise taxes separately (2 PUR3d 525). The court also upheld an order directing Mountain States Telephone & Telegraph Company to bill municipal franchise taxes separately (2 PUR3d 521).

Possible Shift of Telephone Tax

Much interest has been created by reason of the possibility that Congress might not extend the 10 per cent tax imposed upon telephone service. A recently enacted New York law permitting the imposition of a local tax on telephone service for school purposes, provided the federal tax is not extended, makes the telephone company the tax collector, but it is interesting to note that the law does not require the tax to be concealed. It contains a provision that the company in billing shall identify such tax by the descriptive legend "Tax for Local School Purposes." The company may combine the charge and the tax "provided the bill indicates a method of determining the amount of the tax." Chapter 418, Laws of New York 1960, § 807.

Review of Current Cases

Rate Case Involving Overhead Expenses, Depreciation, Working Capital, Return, and Deferral of Taxes Remanded to Commission

THE Alton Water Company case decided by the Illinois commission (22 PUR3d 358) and reviewed by the Illinois circuit court (26 PUR3d 187) has been remanded to the commission for further proceedings. The state supreme court expressed opinions on rate questions as to which the commission and the lower court disagreed.

Scope of Review

The company and the commission had appealed from the circuit court's holdings and they contended that the court had exceeded the proper scope of judicial review. The commission objected particularly to setting aside its order because of purported errors in computing reproduction value less depreciation when the final fair value determination was not challenged as unreasonable.

The supreme court said that without power to review the intermediate steps in the administrative decision-making process, effective judicial review would be extremely difficult, if not impossible. The court said that it had not confined its review to the commission's final order but rather, when called upon to do so and with respect for the commission's expert judgment, it had reviewed the elements of value considered by the commission in computing present fair value.

General Overhead Expenses

The court said that, in determining fair value, the commission properly considered evidence and made findings on original cost less depreciation and reproduction cost new less depreciation. There was disagreement as to an item for general overhead amounting to 15 per cent of reproduction cost.

General overhead expenses are a proper component of reproduction cost new, said the court. To compute them as a percentage of basic physical reproduction cost seems acceptable because it is probable that their amount would be related to the cost of what is being reproduced. The question remained whether overhead expenses amounting to 15 per cent of the basic reproduction cost were justified in this case. An unusually high percentage, the court continued, cannot be justified in terms of generally rising costs, because the present level of costs is already reflected in the basic reproduction cost, of which the overhead item is a percentage. If there were other grounds that supported an increase in the percentage of permissible overhead, they should appear from evidence more specific than the bare conclusions of witnesses.

Depreciation on Reproduction Cost

A company witness had testified that depreciation of 15 per cent should be deducted from reproduction cost, while a commission witness testified to depreciation of 26 per cent and the commission found 25 per cent depreciation. The company witness relied primarily on inspection and supported his calculations on a 4 per cent sinking-fund basis. The commission witness also inspected all of the company's aboveground facilities and examined pertinent records, but depended to a greater extent on 3 per cent sinking-fund computations.

The court said that although the straight-line method of computing de-

preciation is widely accepted, it is only an accounting technique for allocating the cost of fixed assets over the life of the assets and is not a measure of the actual deterioration of property. For rate proceedings in which fair value is a controlling factor, a determination of depreciation by inspection may be preferable to accounting computations, and certainly is an acceptable method. Therefore, the lower court's straight-line computations indicating a depreciation figure of 37 per cent did not alone undermine the result reached by the commission by other methods. The court said that the methods employed by these witnesses seemed reasonable and the commission committed no error in so basing its determination.

Effect of Deficient Service

There was testimony that service to domestic customers and for municipal fire protection was deficient in many respects. This, said the court, might well indicate that physical depreciation had in fact proceeded beyond the extent indicated by inspection. The commission had dealt with the problem of substandard service not by adjusting depreciation but by a direct order requiring the company to submit plans for improving service. The supreme court could not agree that the commission's approach was erroneous.

Working Capital

A working capital allowance is designed to provide a return on funds used to pay expenses incurred before the income produced by those expenses has been received. Such a return, said the court, is not justified where payments by customers make funds available to meet current expenses without additional investment by the stockholders. Where tax accruals actually make funds available, it is error for the commission to ignore them and fail to offset them against the working capital allowance. The court concluded from the testimony and computations that the working capital allowance was not justified by the record.

Rate of Return

The commission had found that a return of 5.6 per cent was fair and reasonable. The lower court reversed this finding because its computations indicated that the common stockholder was in fact receiving a 17 per cent return on his investment. The supreme court said that the circuit court approach was relevant but that there was error in assuming that return on the original common stock investment was the relevant figure in determining the reasonableness of an overall rate of return. The utility is entitled to a reasonable overall return on fair value, not original cost. It would, therefore, be inconsistent to judge the overall return on the basis of fair value, yet judge the return accruing to common shareholders on the basis of a par value which is essentially original cost.

Tax Effect of Accelerated Depreciation

The company had elected to depreciate its property, for income tax purposes, at an accelerated rate as authorized by § 167 of the Internal Revenue Code. The court discussed the purpose of the congressional action in passing this law, the difference between regulated companies and other companies, and the question of "tax deferral." The assumption of a continuous deferral of taxes due to accelerated depreciation, said the court, may be justified in many cases. Experience might show that proper results could be achieved only by this approach. But a war, a general depression, or a decline in the local market might curtail a utility's capital expenditures, and prevent further

tax deferrals. As a result, taxes might increase just at the time when economic circumstances would make the added expense most burdensome.

If the court could see clearly into the future and say with certainty that continuing expansion was certain, and countervailing considerations were nonexistent, it would hold that the commission might not permit current charges for a liability that would never arise. Predictions of future developments, however, are unsure estimates at best.

At the time, the court thought it permissible for the commission to safeguard the financial integrity of utilities by recognizing as present expenses those tax liabilities which are deferred by use of accelerated depreciation. The commission may not, however, shift the benefit of accelerated depreciation from ratepayers to shareholders. The order did not provide that prepaid funds must be deducted from the rate base. The court said that if this deduction was not made, the entire benefit of accelerated depreciation would go to shareholders. The commission's order, therefore, could not stand. The court said that funds accruing deferred tax expenses, and any facilities financed out of those funds, must be excluded from the rate base. The earning power of this money then would either decrease consumer rates or increase service. *City of Alton et al. v. Illinois Commerce Commission et al. 165 NE2d 513.*

Gas Service Properly Denied Because of Unsafe Installation of Appliances

THE New Jersey commission ruled that Public Service Electric & Gas Company properly refused to restore gas service to an apartment building for use in water heaters where the company believed, by reason of faulty installation of the heaters in violation of the company's tariff and regulations, that such service would be hazardous to the public. The tariff and regulations set forth standard installation specifications recognized by the National Board of Fire Underwriters and the American Gas Association.

The tariff and regulations specifically prohibited the installation of water heaters in bathrooms, bedrooms, or any occupied rooms normally kept closed.

Although the heaters in this case were installed in bathrooms, the owner of the premises pointed out that they had been in use for many years and had never caused injury to anyone. He proposed to vent exhaust gases into a makeshift chimney, assuming that this arrangement would satisfy any reasonable safety requirements. Testimony indicated that the company had been instrumental in correcting some 4,000 installations in Bayonne and Jersey City similar to the one in this case.

The commission found that the company's installation regulations were reasonable. They were not discriminatory, either by their own terms or in their enforcement. If the company were to provide service upon discovery of a condition which it knows, or reasonably should know, is dangerous or hazardous, said the commission, it would be remiss in the performance of its duty to safeguard the public interest.

The New Jersey commission refused to pass upon, or give an advisory opinion on, the scope of the corrections which the owner proposed to make in order to comply with accepted standards of safety. *DeCarlo v. Public Service Electric & Gas Co. Docket No. 602-115, March 24, 1960.*

Commission Rules on Trended Original Cost, Cost of Capital, and Advertising

THE Oregon commission authorized Pacific Power & Light Company to increase rates to a level sufficient to yield a return of 6.10 per cent. The new rates were deemed sufficient to enable the company to continue to operate successfully, maintain its financial integrity, attract capital at reasonable rates, and compensate investors for risks assumed.

Particular attention was given to the company's needs and plans for development of new sources of electric energy to replace a large portion of the power being furnished by the Bonneville Power Administration, which power may not be available in the near future. The need to attract capital on reasonable terms to finance that program was also considered.

Rate Base

The company submitted evidence based on the trended original cost method for the purpose of "assisting the commissioner in making a valuation of the company's property, not as the sole measure of its value, but as evidence to be given material weight in determining the 'fair value' of the company's property." The commission pointed out that since the trended original cost study is intended to serve as a measure of property value, it should be accurate, reliable, produce consistent results, and be generally accepted as a reference standard.

The commission noted that much of the trended cost study was based on the use of published manufacturers' indexes designed to cover their own specific needs and not actual material and construction costs of the company. The company's witness was unable to give a satisfactory explanation of the basis for his exercise of judgment in connection with the selection of average service lives and salvage percentages assigned to various properties in his computations of accrued depreciation based on original cost.

The commission staff, on the other hand, used the original cost method. The commission concluded that the trended original cost study lacked the necessary qualifications of an acceptable measuring device or method, resulting in an unrealistic and unsound value measure.

It was concluded that the trending method lacked definiteness and stability. The commission said that it would have the effect, in periods of rising costs, of inflating the value of the dollars invested in plant to meet or approximate present costs. It would, in today's economy, allow the company to reap a return on dollars never invested in plant and require customers to pay for dollars never spent.

In an economy with declining prices and costs, it could be argued that it would be equally unfair to the company to use this method since the result would be to deny the company a return on dollars actually invested in the plant. The commission concluded that the more reliable, fair, and accurate measure supplied by the original cost method should be adopted in this case.

Cost of Capital

The commission held that, in determining a fair rate of return, consideration should be given, among other things, to the company's embedded cost of money, the current and foreseeable future costs of money which the company will be required to pay to finance its construction and expansion program, and the earnings of similar enterprises which are attended by corresponding risks and uncertainties in the light of prevailing economic and financial conditions.

The return must be sufficient to assure confidence in the company's financial integrity, allow it to operate successfully, and attract capital at reasonable rates. A 9.4 per cent return on common equity was considered fair and reasonable, and was adopted.

Earnings-price Ratio

The commission discussed the matter of earnings-price ratios and dividend payout ratios, pointing out that they reflect, to a great extent, the prospective investor's appraisal of the market value of stock. It said that to a lesser extent the investor is influenced by the book equity of the stock. For example, in recent years the market prices of utility stocks have advanced out of proportion to their increased book value. If book value were the prevailing influence, the advance of the market prices would long since have been checked.

Another factor influencing stock prices is expectation of growth. Consequently, the commission held that earnings-price ratios, while useful in helping to determine the cost of such capital, cannot be held conclusive. There must be added some consideration of the existing stockholders and their expectations of modest growth that should result from retained earnings. A just and fair rate of return to the common equity owner under any circumstances should be commensurate with returns on investments in other enterprises having corresponding risks.

Restricted Earned Surplus

One of the issues in this proceeding was the treatment of restricted surplus resulting from accelerated amortization of emergency facilities. The company argued that this fund should be included in the rate base, whereas the commission staff claimed that it did not constitute investor-furnished capital, but was provided by the ratepayers and should be excluded.

The commission discussed four methods of treating restricted surplus for ratemaking purposes. Such surplus is invested in property used and useful. A prior commission order directed that, in determining the rate of return to be granted the company in any future rate proceeding, due consideration should be given to the fund in question as interest and dividend-free capital available for use by the company. In view of this, the commission concluded that surplus should not be deducted from the rate base, but should be considered in the equity portion of the capital structure in determining the cost of capital.

Political Advertising Expenses

The company included in its sales promotion account a contribution to a national advertising campaign conducted in conjunction with other electric utilities. The commission staff argued that it was advertising of a political nature and directed to influence public opinion, and, therefore, not a legitimate charge to operating expense.

The advertising in the pages of nationally distributed magazines contained commentaries on the issue of private *versus* public power. These advertisements were not directed toward promoting greater use of electric power or any other concept that would directly or indirectly benefit consumers. The expenditure was disallowed as an operating charge.

An amount spent by the company in connection with the State Centennial Exposition was considered an abnormal expense and was amortized over a five-year period. *Re Pacific Power & Light Co. UF-2175, Order No. 37086, March 10, 1960.*

Trended Original Cost Rejected as a Measure of Value And Rulings Made on Accelerated Amortization

THE Idaho commission allowed Washington Water Power Company to increase rates to produce a return of 5.95 per cent on an original cost rate base. The company submitted testimony and exhibits relating to two methods of arriving at value. One was based on average original cost and included acquisition adjustments and working capital, less depreciation reserve, acquisition reserve, and contributions in aid of construction. The other method submitted was based on the trended original cost.

Trended Cost Called Unrealistic

The company had submitted the trended original cost study to represent a measure of present value. The study did not reflect the cost to replace in kind the electric properties of the company, and no physical inventory of the property was taken. All that was done was to take the dollars of plant at original cost and apply index numbers thereto, to arrive at trended cost. It was contended that either study, trended original cost or reproduction cost new, would produce similar results.

The commission said that in the process of developing the trended cost study certain index numbers were applied to the original cost of the various types of plant and equipment which, if they were old types, would be priced at the level of current types regardless of the age of the equipment, its operating efficiency, or whether or not such equipment would be installed under modern-day conditions and prices. An examination of the exhibit disclosed that in practically every account the older the plant the greater the conversion factor and the higher the value of the plant as of the valuation date. No adequate consideration appeared to have been given to the inefficiency or higher operating cost of the older plant or to a comparison of the efficiency of newer to older items in the accounts trended.

The commission concluded that the trended original cost study resulted in a value measure "unrealistic and unsound." The commission found nothing in the record that would justify its abandoning the continued use of the original cost method. This deals in documented and historical facts, recorded every day in the company's books, and is free of speculations and assumptions.

Original cost, said the commission, was the actual cost of plant and equipment, and the acquisition adjustment amount was the difference between original cost and the amount paid by the company for certain electric properties. This purchase was the result of an arm's-length transaction. This amount would be amortized over a 15-year period by equal annual instalments being charged to other income charges, thereby creating a reserve against this amount. The commission allowed the acquisition adjustment amount to remain in the rate base but deducted therefrom the amount in the reserve.

Tax Effect of Rapid Depreciation

The company, for income tax purposes, had adopted liberalized depreciation permitted by the Internal Revenue Code. As a result, provisions for federal and state income taxes were less than they would have been had other methods of depreciation been deducted for tax purposes. Only the actual taxes paid had been deducted from revenues. Savings in income taxes resulting from the use of liberalized depreciation had reduced the company's cost of doing business and the ratepayers had been given full advantage of these savings.

A question had been raised as to treatment of restricted surplus resulting from accelerated amortization of emergency facilities. The commission referred to the restricted surplus and said:

"As we view this account, there are four generally used methods of treating restricted surplus for rate-making purposes. The first is referred to as the flow-through method where the ratepayers are charged only with the actual taxes paid. The second is to allow normalization of income taxes and adjust operating income by including interest on the restricted surplus. The third is to allow normalization of income taxes and deduct the restricted surplus from the rate base. The fourth is to allow normalization of income taxes and adjust the rate of return by reflecting the existence of noninvestor supplied funds in the capital structure."

It was the company's position that the restricted surplus amount was created by action of the federal government to encourage construction and development of certain types of plant considered essential for defense purposes and that such funds should be included in the rate base. The commission concluded that since the funds received from amortization of these facilities had been invested in property used and useful and providing service to the public, such property should be included in the rate base. But it would be considered in the equity portion of the capital structure in determining the rate of return. The commission said it would, therefore, use the fourth method in its treatment of accelerated amortization.

Return Allowance

The commission said that in fixing the rate of return it must give consideration to embedded cost of money, both that presently outstanding and that which would be required in the foreseeable future. This return must be sufficient to assure confidence in the financial integrity of the company and to allow it to attract capital at reasonable rates.

A witness for the company ascertained cost of debt and equity money by exercising his own judgment on both costs and then compositing them according to their weight in the capital structure to obtain the overall cost of money. The commission reviewed his testimony, which resulted in his judgment figure of 6.25 per cent to 6.40 per cent as a proper rate of return. It appeared that the actual determination was based wholly on informed judgment of the witness, and the commission concluded:

"After a careful review of all the testimony, it is the judgment of this commission that no showing has been made that the companies, utilized by the witness in arriving at the above figures, possess as comparable amount or percentage of restricted surplus in their capital structure as does the company. It is the staff's recommendation that, with due consideration being given the restricted surplus, a rate of return on the rate base adopted for this proceeding ranging from 5.75 per cent to 6.0 per cent would be fair and reasonable." *Re Washington Water Power Co. Case No. U-1008-28, Order No. 5576, April 22, 1960.*

No Hearing in Telephone Rate Proceeding

THE North Dakota commission considered it unnecessary to hold a hearing in a rate proceeding instituted by a small telephone company. Although notice was given to interested parties, no objections or requests for hearing were filed within the specified time.

A rate increase from $3 to $4 a month

was approved for town business telephones, along with an increase from $2.34 to $3.34 a month for town residence service. Rural rates remain unchanged.

The state commission set forth no rate base or rate of return calculations in its short order granting the company's application. *Re Farmers Teleph. Co. of Gardena, Case No. 5971, March 24, 1960.*

Loss of Grandfather Rights

THE New York supreme court, appellate division, held that the purchaser of a bankrupt carrier's operating rights was not entitled to a grandfather certificate because the purchaser had not continued service for more than three months after the purchase. The reason advanced by the purchaser for not continuing the operation was that it had assumed that consent and approval of the commission for transfer were necessary. The court pointed out that an inquiry would have brought the response that the commission did not require approval. The interruption of service and operation had continued over a year.

Although the purchaser may have made an honest mistake, the court said, its failure to provide service was not beyond its control and other carriers had apparently filled the gap created by neglect to act with reasonable promptitude. The purpose of the grandfather rights statute is to allow continuity and avoid hardship to the qualified carrier pending the processing of his application and to continue service to the public. The purchaser's actions had taken him outside the orbit of the statutory exception.

The court could not say as a matter of law that the commission's order denying the grandfather certificate was contrary to the public interest. In such matters, said the court, great weight is always given to the interpretation of statutes by the authority who has to administer them. *Limousine Rental Service, Inc. v. Feinberg et al. 194 NYS2d 1014.*

Pro Rata Share of System-wide Expenses Factor in Agency Discontinuance

THE Kansas supreme court has reversed a court order holding commission authorization of a railroad agency station discontinuance unreasonable. Whether a railroad may properly be entitled to discontinue an agency at a station generally depends upon the facts of the particular case, said the supreme court.

Ordinarily, the test employed in determining the matter, where an absolutely necessary service is not involved, is whether the public good derived from maintenance of the agency station outweighs the expense of the railroad in continuing such agency.

In determining whether an agency station has been operating at a profit or loss, continued the court, the commission is not limited in its inquiry to the salary of the agent and other direct expenses of maintaining the station. It may give consideration to the station's pro rata share of the railroad's system-wide expenses based upon a recognized operating ratio to ascertain the overall cost of moving traffic. *Missouri-K.-T. R. Co. v. City of Savonburg et al. 348 P2d 1015.*

Private Crossing Denied for Safety Reasons

THE New Hampshire supreme court held that the commission justifiably denied a landowner's petition for the establishment of a private crossing on the grounds that reasonable safety precluded the establishment of a suitable crossing. A landowner whose land is cut off from a highway by a railroad, said the court, has the right to a suitable crossing where a reasonable necessity therefor is demonstrated.

A suitable crossing is one reasonably safe and convenient for the purpose at a location to be determined according to the use made of the land, its physical characteristics, and the practicability and comparative expense of the different modes of crossing, whether by a bridge over the road, a crossing at grade, or a pass under it. The question of location is to be determined by the application of the doctrine of reasonable use, and the convenience of all parties is to be considered in determining this question.

In the instant case, the necessity for a crossing was established by the fact that the plaintiff's land, upon which there was a cottage house some 200 feet from the proposed crossing, was situated on a tract bounded on all sides by a pond and the railroad's right of way. The commission had decided the question of location adversely to the plaintiff.

At the locus of the crossing proposed by the landowner, the view of the railroad track was somewhat limited in either direction, and greatly limited to the traveler's left whether the crossing was approached from east or west. The easterly rail was only 15 feet from the easterly line of the railroad right of way, and 18 feet from the traveled way of the highway. Thus, an automobile stopped upon the approach, between highway and crossing, would have been endangered by the overhang of a passing train unless sufficiently back from the rail for clearance, when it would have been in danger of collision with traffic passing upon the highway.

For these reasons, the commission's finding that the proposed location was unsafe and that it was impossible to provide a suitable crossing as requested, was justified. *Patterson v. Boston & Maine Railroad, 157 A2d 653.*

Capital Cost Considered in Telephone Rate Case

THE Lemoyne Telephone Company has been authorized by the Ohio commission to increase rates to a level calculated to yield a return of 5.75 per cent. It was found that this return would afford sufficient revenues to meet all fixed charges and pay a 6 per cent dividend on the common stock equity portion of the rate base at a pay-out ratio of about 78 per cent. The commission concluded that this return would provide the company with reasonable compensation to meet such items as taxes on income, interest on debt, dividends on stock, a reservation for surplus, depreciation, and contingencies and afford sufficient compensation for the services covered by the company's application.

Commissioner Krueger dissented as to the rate of return, dollar return, and allowable gross annual revenues. He said he would file an opinion subsequently.

The company's rate of return witness estimated the cost of money to the company would not have been less than 7.7 per cent and that a fair rate of return would be 7.95 per cent. In arriving at these estimates the witness assumed a

capital structure consisting of 50 per cent equity and 50 per cent debt. To his alleged "cost of money" of 7.7 per cent the witness added .25 per cent, a judgment allowance, to arrive at his recommended fair rate of return of 7.95 per cent. The commission rejected these estimates on the ground that he used a number of disputable judgment factors in his methods and procedures.

The commission noted that the rate of return estimated as fair by this witness, if applied to the rate base recommended by the commission staff and agreed to by the company, would require an increase in revenues of over 160 per cent of the revenue increase proposed by the company if applied to the rate base originally proposed by the company. It would require an increase in revenue of over 220 per cent of that proposed by the company.

The commission concluded that such "absurd results" constituted a further reason for rejecting the methods employed by this witness. The commission reiterated that fair rate of return is a figure that in the final analysis must be determined on the basis of experienced regulatory judgment, in the light of all the facts and circumstances attendant to the particular case under consideration, and guided by the pronouncements of the state's supreme court. *Re Lemoyne Teleph. Co. No. 28,230, April 22, 1960.*

Filed Tariff Required for Special Railroad Freight Services

THE U. S. Supreme Court affirmed a district court judgment enjoining a railroad from continuing to furnish "roller lumber traffic" service, without filing with the Interstate Commerce Commission a tariff covering such service. The railroad had been furnishing the service on the same tariff as its fast freight.

The railroad has for years engaged in the "roller lumber traffic" by performing intentionally delayed service in the transportation of lumber from the West coast to market. It has refused to file a tariff covering this service, however, but has continued to handle "roller lumber traffic" on the same tariff as its fast freight.

The lower court had found that the railroad rendered a 14-day delayed lumber service over a route ordinarily requiring some two to four days. The delay was accomplished by the holding of cars on sidings at certain points on its trunk lines awaiting diversion orders to move the shipment forward over the railroad's regular service. This afforded the shipper additional time to find a market for the lumber while in transit.

This service incurred additional operational problems and costs for the railroad, including switching, siding, storage, and "per diem cost for the use of foreign cars." These factors were not present in its fast freight service and not included in its published tariff. The Supreme Court agreed with the lower court that such delayed service constituted the furnishing of additional "privileges or facilities" under § 6(7) of the Interstate Commerce Act, and that, therefore, there must be published and filed a tariff covering this service.

The court observed that when the company publishes and files such a tariff, as other railroads have already done, the Interstate Commerce Commission can then consider the reasonableness and justness of the service in the light of that

rate, giving due regard to any unjust or unreasonable preferences or advantages that might result to shippers or other roads should the same not be approved. *Union P. R. Co. v. United States, 4 L ed 2d 766.*

Electric Rates Increased to Cover Higher Capital Cost and Operating Charges

THE Ohio commission has granted the Cincinnati Gas & Electric Company a rate increase calculated to yield a return of 5.5 per cent. It concluded that such a rate of return will provide the company with reasonable compensation to meet such items as taxes on income, interest on debt, dividends on stock, a reservation for surplus, depreciation and contingencies, and afford sufficient compensation for the services covered by the company's application.

Discussion of Return Testimony

The only witness on rate of return in this proceeding was a company witness who estimated a judgment rate of return of 6.25 per cent. He estimated the company's cost of capital to be not less than 6 per cent. To this figure, through application of further judgment factors, he added an allowance of .25, resulting in a rate of return of 6.25 per cent. The commission rejected his conclusions on the ground that they would lead to seemingly absurd results.

Application of his estimate of 6.25 per cent to the statutory rate base found by the commission would result in a rate increase of $750,000 more than the company was requesting. Application of his figure to the rate base claimed by the company would result in a rate increase of $3,250,000 more than the company was requesting.

The commission referred to the case of Bluefield Water Works & Improv. Co. *v.* West Virginia Pub. Service Commission, 262 US 679, PUR1923D 11. This case held, among other things, that a public utility is entitled to such rates as will permit it to earn a return equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties.

The commission then discussed two divergent views as to meaning of that pronouncement. One view is that the proper rate of return is one that is at the same level when related to comparable bases as that of other business undertakings which are attended by corresponding risks in the same general part of the country. Under this view, return would differ when related to bases that are substantially different in inverse proportion to the difference in the bases. Under this view, the company would receive no rate increase in this case.

The other view is, in effect, that the overall rate of return should be substantially the same as that of other business undertakings attended by corresponding risks regardless of the degree of noncomparability of the bases to which the rate of return figure is to be applied. Under this view, the company would receive a rate increase approximately twice that which it requested on its own alleged rate base valuation.

The commission rejected both views. The first view was rejected because of a long line of decisions of the Ohio supreme court culminating in the case of City of Cleveland *v.* Ohio Pub. Utilities Com-

mission, 164 Ohio St 442, 13 PUR3d 276. The second view was rejected on the ground that it would produce absurd results and also because of the City of Cleveland decision.

Accelerated Depreciation

The commission considered the method of treating the reduction in federal income taxes growing out of the use of accelerated depreciation. It noted that it was aware that there are advantages to utilities and consumers alike in being able to look to a settled policy on this matter which involves substantial amounts of money. It said that consumers may anticipate that savings in federal income tax liability will be reflected in consumer rates or, instead, the utility itself may count on savings as a source of interest-free capital for the financing of further improvements to plant, or the shareholders may anticipate greater income.

Normalization of federal income taxes was allowed and no deduction from the rate base was made. Rather, for the purpose of this proceeding, the commission gave appropriate consideration to the fact that the amounts in the reserve for future federal income taxes are a source of interest-free capital in determining the fair rate of return to the company. *Re Cincinnati Gas & E. Co. No. 27,749, April 15, 1960.*

Zoning Board Disapproval of Nonconforming Construction Properly Appealed to Commission

THE supreme court of errors of Connecticut affirmed a commission order which overruled a zoning board of appeals' disapproval of a water company's construction of a second standpipe on its land. The water company had previously erected a standpipe on the land before the zoning regulations became effective, and this constituted a nonconforming use. After enactment of the zoning regulations the company petitioned the zoning board for permission to erect a second standpipe on this land. The board denied the petition and the company appealed to the public utilities commission. The commission overruled the board and granted the petition.

The party appealing from the commission action claimed that the company should have applied to the zoning commission, rather than the zoning board of appeals, and that, consequently, the public utilities commission had no jurisdiction to entertain the appeal. The court held that the land was already being put to a use permitted under the regulations as a nonconforming use. The company's request, therefore, was not for a new use but for the extension of an existing one. While a new use may well require action by the zoning commission, approval of an extension of a nonconforming use is generally a function of the board of appeals. So it was in this case. *Dwyer v. Connecticut Pub. Utilities Commission et al. 158 A2d 742.*

Other Recent Rulings

Telephone Rate of Return. The Wisconsin commission allowed a telephone company a rate increase sufficient to raise its rate of return from 6.27 per cent to

6.51 per cent on a net investment cost rate base. *Re Dairyland Teleph. Corp. 2-U-5254, February 22, 1960.*

Gas Price Condition Imposed. In view of the consumer need for gas proposed to be supplied to a pipeline by a number of producers from the new Aneth field area, the Federal Power Commission granted certificates conditioned for a price of 17.7 cents per Mcf, based largely on prices in the San Juan basin, where the producers failed to offer any substantial support for a proposed price of 20 cents. *Re El Paso Nat. Gas Co. et al. Opinion No. 335, Docket Nos. G-13862 et al. February 23, 1960.*

No Free Service. In fixing rates for a small water company the Wisconsin commission disapproved the practice of supplying free service to a city clinic, pointing out that no free service should be provided to either private or municipal users. *Re Village of Woodville, 2-U-5301, February 25, 1960.*

Transit Operating Ratio. In authorizing a rate increase for a transit company sufficient to afford an operating ratio of 98.2 per cent, or a rate of return of 5.2 per cent on its investment, the Kentucky commission recognized that the new rates would not produce "a desirable profit," but that higher rates would be detrimental to the company in the long run. *Re Lexington Transit Corp. Docket No. 2306, February 26, 1960.*

Conditional Interim Rate Hike. As a condition to approval of an interim rate increase, the California commission required a telephone company forthwith to improve its service and further indicated that a rate reduction would be considered if the company failed reasonably to pursue an improvement program during the next two years. *Re Coachella Valley Teleph. Co. Decision No. 59765, Application No. 41263, March 8, 1960.*

Inflation Requires Rate Increase. Following a telephone rate increase for California Water & Telephone Company in early 1959, the California commission has approved a new rate increase requested by the company in view of inflationary costs, and the new rates will produce the previously allowed rate of return of 6.25 per cent on local exchange and intracompany toll operations. *Re California Water & Teleph. Co. Decision No. 59772, Application No. 41298, March 8, 1960.*

Transit Operating Ratio. The California commission approved a rate increase proposed by San Diego Transit System, calculated to result in an operating ratio of 95.9 per cent and a rate of return of 6.4 per cent. *Re San Diego Transit System, Decision No. 59771, Application No. 41584, March 8, 1960.*

Customer Advances Required. Prospective new customers seeking an extension of telephone service from a small company which was unable to obtain outside financing were required by the Missouri commission to pay for three years' service in advance, together with such additional sums as might be needed to pay for the construction of necessary new lines. *Narron et al. v. Miami Teleph. Co. Case No. 14,276, March 9, 1960.*

Unauthorized Service Certificated. Although it does not condone unauthorized service, the New York commission, nevertheless, allowed a contract carrier of passengers by small vehicles to use buses which the carrier had been using without

authority, where the public need for the larger vehicles was shown. *Re Dickerson, Case 20368, March 22, 1960.*

Transit Operating Ratio. An operating ratio of 94.8 per cent, affording a rate of return of 10.3 per cent, was approved by the California commission as reasonable for a transit company. *Re Fresno City Lines, Inc. Decision No. 59791, Application No. 41559, March 15, 1960.*

Intervener in Gas Rate Case. The city of Cleveland, which has rate-making powers, was permitted by the Federal Power Commission to intervene in the Panhandle Eastern Pipe Line Company rate case on grounds of public interest, despite a contention that the city was adequately represented by an existing party to the case, the present distributor of Panhandle gas in Cleveland. *Re Panhandle Eastern Pipe Line Co. Docket No. G-19780, March 18, 1960.*

Interstate Gas Producer Sales. On application for rehearing, the Federal Power Commission reiterated its position that where a natural gas producer sells gas for resale to an interstate pipeline which delivers the gas, commingled with out-of-state gas, to customers in both the producer's state and another state, such producer sales are essentially part of the interstate course of business and are in interstate commerce. *Re Oklahoma Nat. Gas Co. et al. Docket Nos. G-19593, G-19594, March 25, 1960.*

Pro Forma Rate Calculations. In allowing a gas company a rate increase to offset most of a commodity cost increase, the Connecticut commission pointed out that in projecting expenses for a pro forma period due weight must be given to increasing sales. *Re Greenwich Gas Co. Docket No. 9878, March 28, 1960.*

Temporary Authority. The U. S. court of appeals held that the FCC has the power to issue temporary authority to construct and operate a television station. *Re Community Broadcasting Co. v. Federal Communications Commission, 274 F2d 753.*

Denial of Additional ICC Authority. The U. S. district court refused to disturb an ICC order denying a motor carrier additional transportation authority where there was substantial evidence to support the commission's finding that the testimony had been too general and indefinite to warrant granting the requested authority, notwithstanding that there might be some need for additional service on the routes in question. *Patterson v. United States, 178 F Supp 771.*

Necessity of Detailed Findings. The U. S. district court pointed out that the Administrative Procedure Act requirement, relating to findings, is met when an agency makes clear the factual basis upon which it has proceeded, since detailed findings of every subsidiary evidentiary fact are not required. *Re Southern R. Co. v. United States et al. 180 F Supp 189.*

Prevailing Rates. The U. S. district court held that railroad rates in effect at the time of a shipment, though unjust or unreasonable, none the less prevail until lawfully changed by published tariffs, or an existing order of the commission, as provided by applicable state statutes. *United States v. Northern P. R. Co. 180 F Supp 828.*

PUSH BUTTON PEAKING PLANT FOR MAINE PUBLIC SERVICE COMPANY

Electro-Motive Power plant to supply power for peak loads, system reserve and area protection.

For details, turn page . . . . . .

Maine Public Service Company Installs

ELECTRO-MOTIVE PEAKING AND RESERVE PLANT

Load study determines need for peaking power.

The decision by Maine Public Service Company to install Electro-Motive peaking equipment resulted from a systems study which pointed up the need for additional generating capacity to handle increased peak demands. An Electro-Motive 4200 KW plant was selected for these reasons:

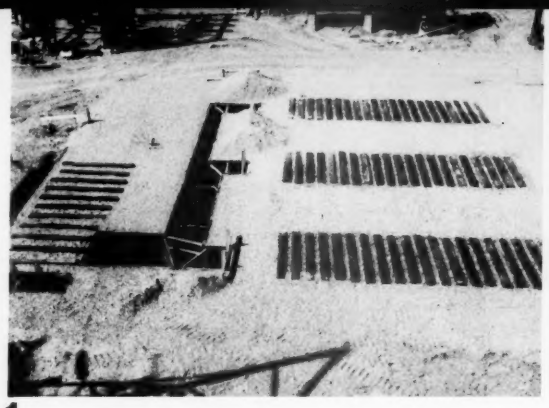
- **Low investment.** On the Maine Public Service System, the Electro-Motive plant has an annual fixed charge of less than $17 per KW per year, compared with $28 per KW per year for alternative equipment. Thus, the Electro-Motive plant provides an economical solution to short duration peak demands.

- **Unattended, remote operation.** The Maine Public Service plant is operated by push-button control from the company's central dispatching headquarters in Presque Isle, four miles from the substation where the plant is located. The plant comes on line and shuts down automatically on signal from the dispatcher.

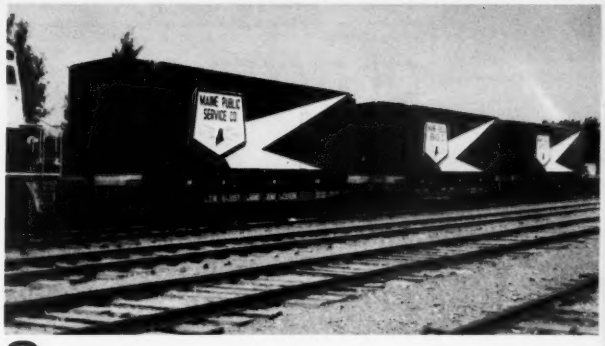
- **Quick start.** The plant comes on line and up to full load *in 60 seconds* on quick start, or 90 seconds on a normal start. Preparation time not required for peak. Immersion oil heaters keep engines ready for instant starting. Because of this, the plant qualifies as a reliable source of power for systems reserve and area protection.

Portable components simplify installation

Each of the components in the Electro-Motive plant is contained in a sound-deadened, weather-proofed housing. This unitized, self-contained design permitted installation costs of under $17 per KW for Maine Public Service Company. (Cost included shipping, site preparation, fuel tank, material and labor for electrical connections.) How the plant was installed is demonstrated in this sequence of photos:



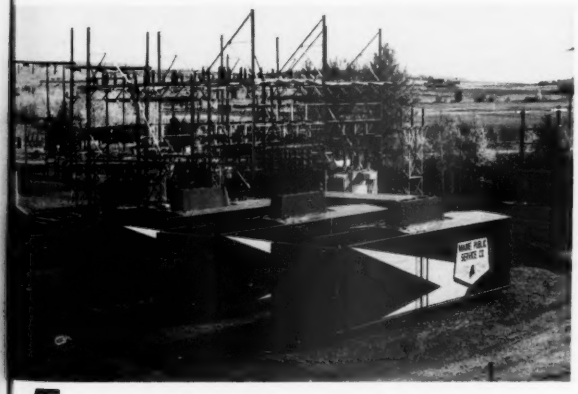
1 **Preparation of site** at the station began before plant arrived. Wood ties are set in crushed rock fill as foundation for skid-mounted components. Cable trough provides means for connecting cables and service lines. Note absence of concrete or other costly foundation work.



2 **Plant was shipped** by rail to Presque Isle from Electro-Motive Division in LaGrange, Illinois. Components are designed to ship on any standard flat car and meet standard railway clearance requirements.

3 **Truck trailers** were used to transport the components to the installation site at Flo's Inn station, four miles from Presque Isle. Components were styled in attractive green and white colors—caused favorable attention as they passed through the city.

4 **At the site,** cranes unloaded components onto the foundation ties. Engine-generator sets, balanced and vibration-free, eliminate anchoring or tie-down. Located right at the step-down substation serving the load, the plant's full capacity can be used where needed. This eliminates line loss which would occur if it were placed at the central station.



5 **Completed installation** three weeks later. The following week, after test and adjustment, the plant was qualified for commercial service for an average two hours a day. If desired, it may be moved to a new site as quickly as it was installed. A fourth generating unit may be added to boost capacity at low incremental cost.

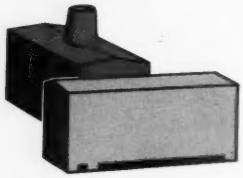
For an analysis of the savings that can be derived from Electro-Motive peaking equipment on your system, contact your Electro-Motive representative.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS La Grange, Illinois

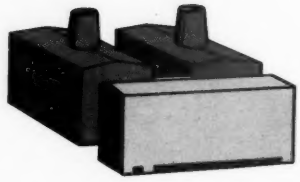
Sales-engineering offices: Chicago, New York, St. Louis, San Francisco

In Canada: General Motors Diesel Limited, London, Ontario

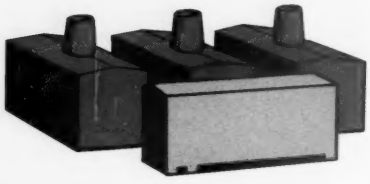
ELECTRO-MOTIVE PEAKING EQUIPMENT LINE



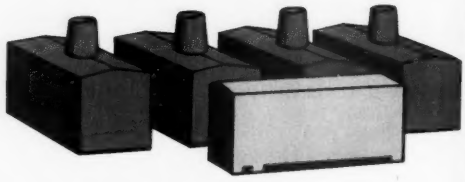
MU-20 2000 KW Diesel
MU-14DF 1000 KW Dual-fuel



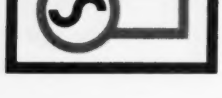
MU-40 4000 KW Diesel
MU-28DF 2000 KW Dual-fuel



MU-60 6000 KW Diesel
MU-42DF 3000 KW Dual-fuel



MU-80 8000 KW Diesel
MU-56DF 4000 KW Dual-fuel



The Electro-Motive peaking equipment line contains both Diesel and dual-fuel plants. Diesel plants range in size from 2000 KW to 8000 KW. Dual-fuel plants start at 1000 KW and run to 4000 KW.

With a complete range of sizes and two fuel types available, exact peaking requirements can be matched to provide the most economical and efficient operation at lowest investment. When load growth occurs, additional generating units may be added at low incremental cost to bring the plant up to desired size.

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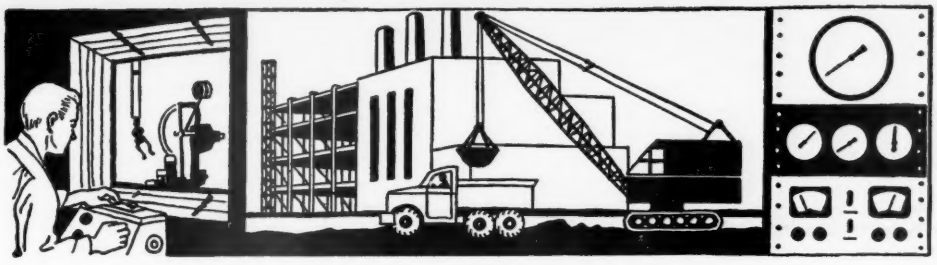

Industrial Progress

Detroit Edison Expects 1960 Construction Outlay of $70 Million

DETROIT Edison Company's 1960 construction expenditures were estimated at about $70 million by Walker L. Cisler, president, at the recent annual meeting of stockholders. This would compare with $59 million in 1959.

Mr. Cisler estimated construction expenditures would average $50 million annually in the next five years.

Tennessee Gas Proposes $46 Million Expansion

THE Tennessee Gas Transmission Company filed an application with the Federal Power Commission to construct a $46,206,000 enlargement of its pipeline system.

The new pipeline and compressor facilities, the company said, would be used to supply up to 160 million cubic feet of additional gas per day to 46 of the firms' customer companies at delivery points from Mississippi to northern New England.

The system enlargement would include 191 miles of 36-inch and 30-inch pipeline to be constructed parallel to the existing system in Kentucky, Ohio, Pennsylvania and New York and compressors with 43,600 horsepower to be installed in five new stations in Mississippi, Alabama, Kentucky and New York, plus four existing stations.

Realignment of Marketing Section Announced by G-E Meter Dept.

A MAJOR realignment of marketing personnel designed to provide faster, more efficient service to electric utilities has been made by General Electric's Meter Department, Somersworth, New Hampshire.

Most significant change in the reorganization is the combining of watthour meter and instrument transformer sales, previously separate sales units, into unified operations under two regional sales managers.

The realignment parallels the reorganization of General Electric's Apparatus Sales Division which was implemented during the last half of 1959 to provide more specialized sales service to customers.

Bruce B. Gravitt, Meter Department marketing manager, explained that factory sales personnel in Somersworth have been assigned responsibility for specific electric utility customers on both meters and instrument transformers to provide faster, more integrated customer service on the department's two major product lines.

William S. Smith and Kenneth T. McEntire have been appointed regional electric utility sales managers in the new marketing organization. New manager of the Resale Operation succeeding Smith is James N. Thompson. The Resale Operation is responsible for sales to original equipment manufacturers, electrical distributors, rural electro co-operatives, and municipal utilities.

Literature on Base Station Equipment Available From Motorola

COMPLETE descriptions of all two-way mobile radio base station equipment available from Motorola are contained in a new booklet published by the company.

The new catalog contains specifications and photographs of upright cabinets, remote control and desk top consoles and special AC utility base stations. In addition, several pages are devoted to descriptions of the various base station antennas, monitor receivers and Motorola's "Quik Call" selective signalling system.

Listings of all base station accessories are also included.

Glenn O. Ladd Joins the Commonwealth Services Rate Department

GLENN O. LADD has joined Commonwealth Services Inc. as a senior consultant in the Rate Department. He will work with public utility companies on rate cases, rate structure development, cost of service studies, load research programs, and rate audits, according to W. B. Tippy, president of the management and engineering consulting firm.

Mr. Ladd has had extensive utility operating and regulatory experience. For the past 16 years, he has been in charge of rates and contracts for Arkansas-Missouri Power Company and for a number of years was also supervisor of the company's power sales.

Georgia Leads Nation in Electrically Heated Buildings

GEORGIA now leads the nation in the number of electrically heated commercial buildings.

Georgia Power Company heating engineers made that statement recently as they pointed out the company is providing electricity for heating 1,400 commercial buildings. New buildings containing all-electric heating installations are being added to the company's lines at an average rate of 55 a month.

The company's rates for its commercial customers have helped put Georgia at the top in electrically heated commercial establishments, according to J. E. Sweatte, who heads a corps of 42 electrical engineers specializing in adapting a variety of methods of electric heating for commercial purposes. Mr. Sweatte also

(*Continued on page* 20)

pointed out that the increasingly downward trend of electric rates in Georgia has helped account for the state's leadership in the electric heating field.

"Additional credit," he said, "should go to great technological improvement in electric heating in recent years. The maximum capacity of heat pumps has multiplied 10 times in the past two years, making them capable of heating any size building."

Folder on "Beacon" Coal

HANDY information to facilitate ordering its various grades of "Beacon" coal is contained in an attractive four-page folder available from Eastern Gas and Fuel Associates.

The folder includes tabular data on the name and characteristics of each grade, the mine where it is produced, shipping facilities to assure speedy deliveries, and the different sizes made. It is pointed out that there is a Beacon coal suited to every fuel need: domestic or commercial, hand or stoker firing, general industrial, electric utility, railroad, coke or gas plants, and special uses

The publication may be obtained without charge from the Coal Division headquarters office of Eastern Gas and Fuel Associates, Koppers Building, Pittsburgh, or from sales offices in Boston, Cleveland, Detroit, New York, Norfolk, Philadelphia, and Syracuse.

Big Northern Market For Heat Pump Predicted

CHARLES V. FENN, vice president of Carrier Corporation, has predicted that widespread use of heat pumps in northern climates will be one of the significant developments in air conditioning during the next ten years.

Mr. Fenn said recent developments in office planning and in heat pumps make it both practical and economical for these versatile systems to use excess inside heat to warm entire buildings.

"It is no longer necessary to confine heat pump marketing efforts to mild climates where warmer outside air or well water provides a supplemental source of heat," Mr. Fenn said. "The wider use of modern, intense lighting and business machines, plus the fact that air conditioning permits more people to work comfortably in less space, have created new sources of heat. In fact, so much interior heat is generated it is often necessary to simultaneously cool inside areas while heating outer offices."

The Carrier executive said his company is building refrigeration equipment with 1,400 tons of cooling capacity for use with a heat pump installation in the new eight-story headquarters and research center of the Allen-Bradley Company in Milwaukee. This system is larger by nearly 500 tons than the previous record-size system built by Carrier last year for a publishing plant in Indiana. It also will be the northernmost installation of this type of equipment in the country, he said.

The new Carrier Balanced Heat Pump System will heat the entire building by extracting surplus heat from people, lights and business machines in interior areas and transferring it to cooler offices located on the outer parts of the building.

During warm weather the three centrifugal refrigerating machines to be provided by Carrier will be used to cool the entire building. In winter they will cool some parts of the building and heat others, simultaneously. In addition they will warm up two 75,000 gallon tanks of water for heating the building during weekends and at night when heat from people, lights and office machines is not available. No boilers or other fuel-heating devices are required.

Electric Industry Has 42 Million Kilowatts of New Capacity on Schedule

THE electric industry has 42 million kilowatts of new capacity scheduled for operation, more than 90 percent of which will be installed by the end of 1963, it was reported recently in the 27th Semi-Annual Electric Power Survey of the Edison Electric Institute. The total represents an increase of 9.6 percent over the schedule of 38.3 million kilowatts reported at the beginning of the year.

For 1960, the addition of 12 million kilowatts will bring generating capability to 170.5 million kilowatts by the end of the year. The addition represents an increase of about 7½ percent over the 1959 generating capability of 158.4 million kilowatts reported by the Survey.

The Power Survey covers practically the entire electric power industry of the country, including both investor-owned systems and those

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of governmental agencies—Federal and non-Federal.

Electric energy output in 1960 is expected to reach 770 billion kilowatt-hours, an 8.8 percent increase over the 707 billion kilowatt-hours recorded by the industry in 1959. Longer-range forecasts bring a startling new figure into the power production picture—with annual nationwide output estimated at about one trillion kilowatt-hours in 1963.

By December, 1963, total capability of the industry is expected to be 203 million kilowatts, the Survey notes in presenting 1963 forecasts for the first time. This figure represents an average annual increase of 7.1 percent for the five-year period from December, 1958, and is almost four times the total capability in 1948. For the fifteen year period, 1948-1963, the average annual increase is 9.2 percent.

Peak load for the contiguous United States (excluding Alaska and Hawaii) in December of 1960 is predicted in the Survey as 133.6 million kilowatts, or 9.8 percent above the 121.7 million for December, 1959. Gross margin of generating capability over demand is estimated to be about 27.6 percent next December.

For December, 1963, the peak load forecast is 164.2 million kilowatts. At that time, gross margin of capability over demand is expected to be about 23.6 percent.

Chairman of the Institute's Power Survey Committee is Arthur S. Griswold, vice president of the Detroit Edison Company.

Coal Consumption to Rise Sharply

TVA estimates that during the next 10 years it will burn about 300 million tons of coal in its steam plants—nearly three times the amount burned in the past decade, according to E. P. Ericson, chief, TVA Fuels Planning Staff. At that time annual TVA consumption will be 40 million tons, or twice the present rate of use.

"For several years," he said, "TVA's coal use has comprised 11 per cent or a little more of the total national use for electric power generation. Let us assume that TVA's coal use will continue to be not less than 10 per cent of the national total This would mean a total national demand for coal for electric power production in the next decade on the order of three billion tons. The indicated annual consumption 10 years from now is 400 million tons. This is as much coal as is being mined annually now in this country for all purposes—and customers other than the electric power industry now use about 60 per cent of all the coal produced."

Mr. Ericson stressed that he was not predicting that the electric industry would be using this amount of coal 10 years from now, but rather that this was a plausible indicator of what this one market can become for the coal industry.

Northern Natural Gas Company Plans $74,000,000 Program

NORTHERN Natural Gas Company, Omaha, Nebraska, estimates that its 1960 program will cost $74,000,000. Plans are under way to bring natural gas service to 40 or more communities this year. These communities are part of the 342 authorized for natural gas service in

(*Continued on page 22*)

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July, 1959, of which 43 received service late last year. Extension of natural gas service to the remaining communities has been delayed pending a review by the courts of the Federal Power Commission order.

It is also anticipated that authorization will be received this year in time to construct facilities to permit sales of 75 million cubic feet of gas daily at Janesville, Wisconsin for the markets in the Great Lakes area.

The company recently observed its thirtieth anniversary.

All-electric Apartment House Being Built in Philadelphia

PLANS were announced recently for the construction of a 13-story apartment house in Philadelphia which when completed is expected to be the largest all-electric apartment house in the United States.

The 132-unit, 3½ million dollar apartment house will feature all-electric heat, cooling, lighting and appliances. It will be named the "Iroquois" and will be located at 47th st. and City ave.

The "Iroquois" may be the first multistory all-electric apartment house to be completed in the United States, according to officials of the General Electric Company, which is supplying the electrical equipment and appliances.

No buildings of this type have been reported in other parts of the world, the G-E officials said.

They added that several other such apartment houses — each with less than 100 units—are reported in the planning stage in this country, but that none are scheduled for the East.

Judson Hyde Elected Treasurer-Controller Of Burns and Roe

JUDSON G. Hyde has been elected to the board of directors of Burns and Roe, Inc., a New York engineering and construction firm. He has also been elected treasurer of this firm and will continue his duties as controller and director of the company's Finance Division.

Before joining Burns and Roe last year, Mr. Hyde was treasurer-controller of Sperry Products, Inc., and resident manager of the Stamford office of the certified public accountant firm now succeeded by Ernst and Ernst. He also has been associated with Firestone Tire and Rubber Company, and Southern New England Telephone Company.

National Safety Council Publishes Safety Talks for Public Utilities

THE National Safety Council has published a book of 50 safety talks for supervisors in the electric, gas, telephone and water utility fields.

Entitled "Fifty Short Talks for Tailboard Meetings," the book was written by five members of the executive committee of the Council's public utilities section. Subjects for the talks were selected by the executive committee.

The book humorously illustrated, is the second in a series written especially for public utilities personnel. it covers a broad range of subject matter—from safe lifting procedures to hard hats.

Each talk gives background information and specific safety hints on subjects public utility supervisors deal with daily.

Further information on "Fifty Short Talks for Tailboard Meetings" and quantity prices may be obtained from the National Safety Council, 425 N. Michigan Ave., Chicago 11, Illinois.

Four Utility Companies Named For Honors By Look Magazine

SPECIAL merchandising citations were presented recently Look Magazine to four leading utility companies in recognition of their outstanding service to the home building industry. The presentations were made at the recent Annual Convention of the Public Utilities Advertising Association.

The honored companies, each of which received an engraved plaque, are the Appalachian Power Company, Huntington, W. Va.; The Union Electric Company, St. Louis, Mo., and the Southern California Gas Company and the Southern Counties Gas Company, both located in Los Angeles, Calif.

The winning companies are cited for giving extensive co-operation to leading home builders in their areas in the development of new subdivisions and the sale of newly erected homes. In every case, both home builder and utility company made coordinated use of Look's highly successful marketing program for home builders "Brochure Power."

IBM Literature Offered

INTERNATIONAL Business Machines Corporation reports that single copies of recently published literature are available. Included in the literature is the following which will be of particular interest to public utilities:

"Digital Computation of Technical Problems Saves One Million Dollars" (Application General Information Manual, Form Number E20-4045, 24 pages).

The above is a reprint of an address made in May, 1959 by a Detroit Edison computer application engineer. This manual outlines the customer's estimate of savings realized through the solution of technical problems on the 650. The author cites about a dozen cases on which the Detroit Edison estimate was made. He also presents tables of yearly expenses and savings, an array of unevaluated benefits, a sample problem, and an appendix briefly describing thirty-five problems which Detroit Edison has programmed for the 650.

For a copy contact the nearest IBM branch office or the Applications Library, International Business Machines Corporation, 590 Madison avenue, New York 22, New York.

Gas Industry to Double Spending

AMERICAN Gas Assn. president, Wister H. Ligon predicted that the industry will double its construction outlays and expand the nation's gas network by nearly 50 per cent during the sixties.

Mr. Ligon made this statement recently at the opening session of AGA's combined distribution and transmission conference. According to Mr. Ligon, the nation's 1,450 gas utility and pipeline companies will spend about $28,300,000,000 for expansion in the next 10 years, against $14,200,000,000 in the fifties.

He said the number of the industry's customers will increase by 40 per cent in the same period, while sales of gas are expected to double.

"We estimate we will have to add more than 250,000 miles to our gas network, increasing it from today's 596,000 to 878,000 miles by 1970," Mr. Ligon declared.

He said these figures include pipelines, utility mains, and the field and gathering lines of transmission and distribution companies, but exclude producers' field and gathering systems.

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"Of course, we have a certain amount of turnover: new people coming in constantly...some leaving for other jobs. Then, too, many of our employees just never got around to signing that handy little card.

"Right away I talked with our State Savings Bonds Director. With his help we carried the Payroll Savings Plan story to *every* person in our firm. You know, Bill, people like to be invited, *personally*, to join a group like this.

"Our response to this friendly canvass was amazing. Now we have better than 45% of our staff enrolled—and the percentage is gaining every payday."

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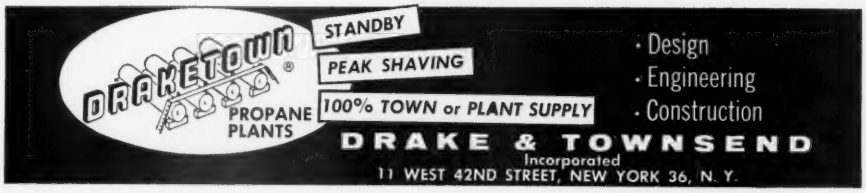

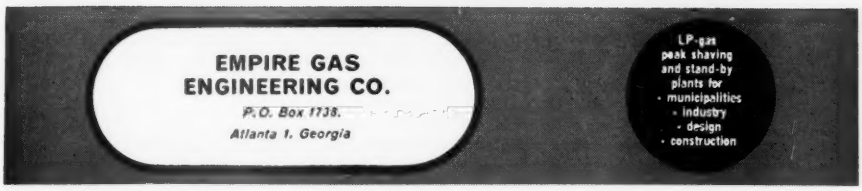

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A

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American Appraisal Company, The 24
*American Motors Corp.
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B

*Babcock & Wilcox Company, The
*Bell Telephone System
Black & Veatch, Consulting Engineers 24
*Blyth & Company, Inc.
Boni, Watkins, Jason & Co., Inc. 24
Burns & McDonnell, Engineers 29
Burns and Roe, Inc. 24
*Burroughs Corporation

C

Carter, Earl L., Consulting Engineer 29
*Coleman Company, Inc., The
Columbia Gas System, Inc., The Inside Front Cover
*Combustion Engineering, Inc.
Commonwealth Associates, Inc. 11, 24
Commonwealth Services, Inc. 11, 24
Consolidated Gas and Service Company 29

D

Day & Zimmermann, Inc., Engineers 24
Dodge Division of Chrysler Corp. Inside Back Cover
Drake & Townsend, Inc. 25

E

*Eastman Dillion, Union Securities & Company
*Ebasco Services Incorporated
Electro-Motive Division, General Motors 15-18
Empire Gas Engineering Company 25

F

*First Boston Corporation, The
Ford, Bacon & Davis, Inc., Engineers 25
Foster Associates, Inc. 25
Francisco & Jacobus 25

G

Gannett Fleming Corddry and Carpenter, Inc. 29
General Electric Company Outside Back Cover
Gibbs & Hill, Inc., Consulting Engineers 25
Gilbert Associates, Inc., Engineers 26
Gilman, W. C., & Company, Engineers 26
*Glore, Forgan & Company

H

*Halsey, Stuart & Company, Inc.
*Harnischfeger Corporation
*Harriman, Ripley & Company
Harza Engineering Company 26
*Hi-Voltage Equipment Company
Hoosier Engineering Company 26

I

*International Business Machines Corp.
Internuclear Company 29
Irving Trust Company 9

J

Jackson & Moreland, Inc., Engineers 29
Jensen, Bowen & Farrell, Engineers 26

K

Kellogg, M. W., Company The 26
*Kidder, Peabody & Company
*Kuhn Loeb & Company
Kuljian Corporation, The 27

L

*Langley, W. C., & Co.
Leffler, William S., Engineers Associated 27
*Lehman Brothers
*Line Material Industries
*Loeb, (Carl M.) Rhoades & Co.
Lougee, N. A., & Company 27
Lutz & May Company, Consulting Engineers 29

M

Main, Chas. T., Inc., Engineers 27
Merrill Lynch, Pierce, Fenner & Smith, Inc. 20
Miner & Miner, Consulting Engineers 29
Moloney Electric Company 7
*Morgan Stanley & Company

N

*National Association of Railroad & Utilities Commissioners
National City Management Company 27

O

*Osmose Wood Preserving Company of America, Inc.

P

Pioneer Service & Engineering Company 4, 27
Pittsburgh Testing Company 29
*Plastics and Coal Chem. Div., Allied Chemical Corp.
*Pole Sprayers, Inc.

R

Ransom, R. A. Company, Inc. 28
Recording & Statistical Corporation 21
Remington Rand Div. of Sperry Rand Co. 5

S

Sanderson & Porter, Engineers 28
Sargent & Lundy, Engineers 28
Schulman, A. S., Electric Co., Engineers 29
*Smith Barney & Company
Standard Research Consultants, Inc. 28
Stone and Webster Engineering Corporation 28
*Studebaker-Packard Corporation
Sverdrup & Parcel, Engineers & Consultants 29

T

*Texoma Enterprises, Inc.

W

*Westinghouse Electric Corporation
*White, Weld & Co.
Whitman, Requardt and Associates 28
Williams, A. W., Inspection Co., Inc. 29

Professional Directory 24-29

*Fortnightly advertisers not in this issue.

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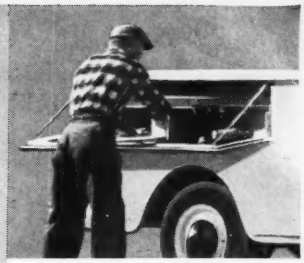
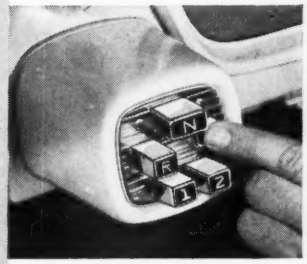
There's a place for almost everything in the Tradesman. Tools, fittings and supplies stow neatly in lock-up compartments, safe from weather damage and theft. For larger items, there's a spacious floor 7½ feet long . . . with sliding roof available. The Tradesman is organized for quick job-handling, and is perfect for public utilities service!

Choice of two body styles assembled by Dodge to save you delivery time: one with four compartments, one with six. Standard engine is a 120-hp. Six, with a 200-hp. V-8 optional. Transmission choices include 3- and 4-speed Synchro-Shift models and push-button automatic LoadFlite. Spacious cab, smooth ride, easy to handle . . . dependable. Better check with your Dodge dealer for the full story on how the 1960 Dodge Tradesman will help you accomplish more . . . in shorter time!

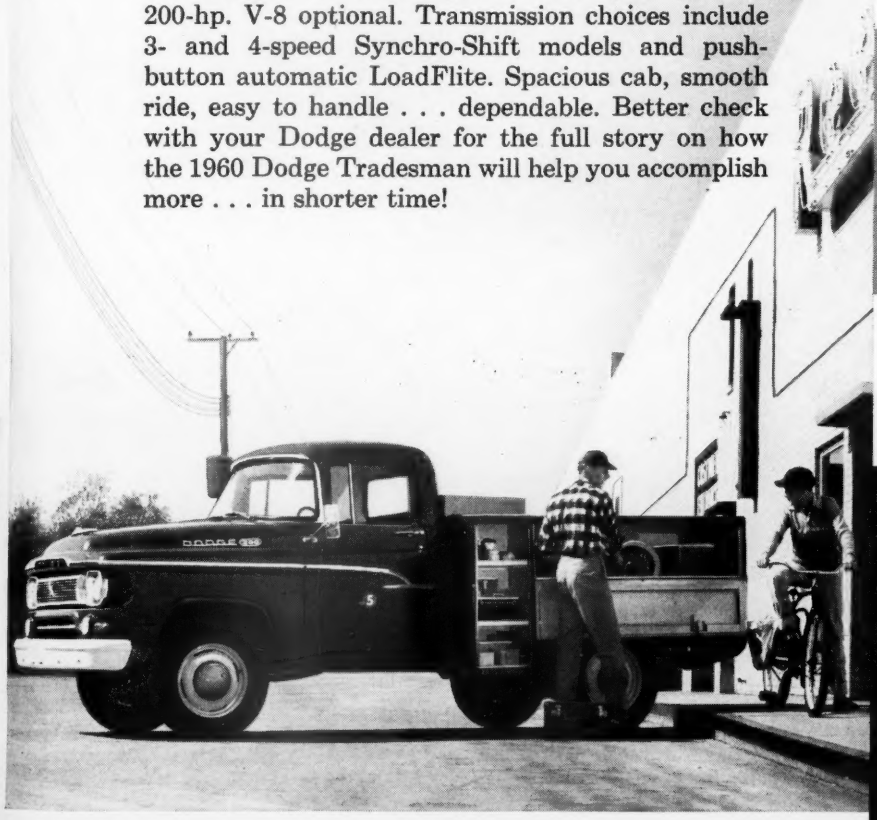


Built-in "Workbench" is formed when you drop the door of the horizontal compartment on either side. Handy, speeds your work every day.



LoadFlite push-button automatic transmission, found only on Dodge trucks, provides greatest driving ease plus top economy. Optional.

Dodge 4 x 4 Models, like this crew-or-cargo-carrying Town Wagon, deliver bonus traction . . . make any off-road job easy to reach.



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Coming Closer: ECONOMICAL NUCLEAR POWER

FIVE YEARS AGO General Electric established its Atomic Power Equipment Department to consolidate the Company's work on commercial applications of nuclear energy. After three years of research and development, the Department set two closely related goals of interest to electric utilities:

- continued improvement of the boiling water reactor, which General Electric research had shown to be the reactor type most likely to bring economical nuclear power fastest, and at least cost
- attainment of competitive nuclear power in high-fuel-cost areas by 1965

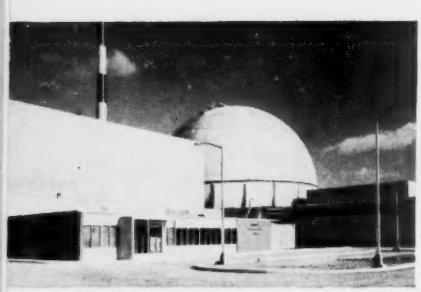
IN APRIL 1960 an important event symbolized the rapid progress made toward the first goal. Commonwealth Edison's Dresden station, the nation's largest all-nuclear power plant, produced its first power for the Chicago area. Boiling water reactor technology has been advanced considerably by design, construction, and test experience at Dresden.

DURING THE NEXT FEW YEARS a series of boiling water reactor plants will be constructed, each making a significant contribution to the attainment of the second goal, competitive nuclear power. These plants are part of Operation Sunrise, a G-E technical development program which has already resulted in several innovations with significant cost-cutting potential:

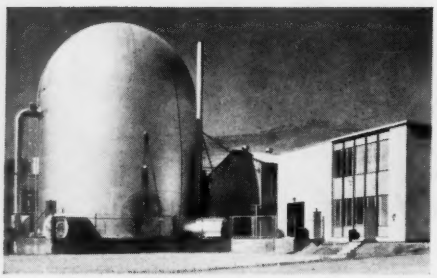
- **Pressure suppression**, which eliminates the need for large spherical containment vessels in some applications
- **Nuclear superheat**, which results in an improved heat rate
- **Internal steam separation**, which eliminates the need for high steam drums and extensive piping

Two 50,000-kw Operation Sunrise plants will be completed by 1962—Pacific Gas & Electric Company's Humboldt Bay station and Consumers Power Company's Big Rock plant. Operating experience gained from these and other evolutionary plants, as well as from Dresden and from G.E.'s Vallecitos Boiling Water Reactor, will help cut the cost of nuclear power further.

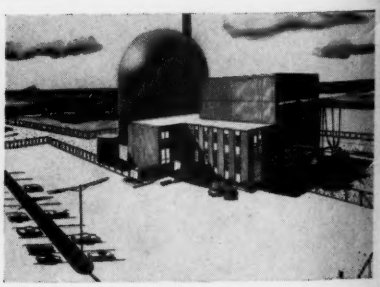
IN THE 1970'S nuclear fuel will achieve conventional status throughout the United States. The co-operation of electric utilities, the Government, and manufacturers toward this end is an indication of a progressive attitude toward technological development, an attitude which will help this country maintain its international prestige and security. For more information on Operation Sunrise, write for publication GED-3750, General Electric Company, Section 604-05, Schenectady 5, N. Y.



COMMONWEALTH EDISON'S 180,000-kw Dresden station, the nation's largest all-nuclear power plant, began supplying power in April, 1960.



THE VALLECITOS BOILING WATER REACTOR is part of G.E.'s Vallecitos Atomic Laboratory, the world's largest privately owned nuclear laboratory.



TO BE COMPLETED IN 1962, this plant of Consumers Power Company will contribute to a rapidly growing boiling water reactor technology.

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